

10th Annual Expeditionary Conference

"Joint Expeditionary Forces...Winning Today and Tomorrow"

24-27 October 2005

Panama City, FL

Conference Brochure and Final Agenda

Tuesday, 25 October 2005

General Session:

- Expeditionary Warfare in the 21st Century & GWOT, by Major General Gordon C. Nash, USMC, OPNAV N75, Director, Expeditionary Warfare Division
- Integrated Deepwater System (IDS), by RADM Patrick M. Stillman, USCG, PEO, Integrated Deepwater System Commandant (G-D)
- Seabasing Logistics, Vice Admiral Justin D. McCarthy, SC, USN, OPNAV N4, Director of Material Readiness and Logistics

Session - Joint Battlespace Awareness and Command and Control:

Panel Presentations:

- FORCEnet: A Process and a System, by Captain R. Simon, USN, Director Force Net, NETWARCOM
- MAGTF C2 Overview, by Colonel R. McFarland, USMC, Director, C2 Integration Division Expeditionary Force Development Center MCCDC
- Network-Enabled Battle Command for the Joint Fight, by Colonel James B. Henderson, USA, Army, Land WarNet
- Air Force Command and Control & Intelligence, Surveillance and Reconnaissance Center, by Colonel Greg Pietrocola, USAF, Advisor to the Commander, AFC21SR Center, Langley AFB
- Composeable FORCEnet: Composeable Command and Control for Joint Expeditionary Decision Making, by Mr. George V. Galdorisi, Director, Decision Support Group, SPAWAR Systems Center, San Diego

Wednesday, 26 October 2005

Session - Sustaining the Sea Base:

Using Logistics to Gain Competitive Advantage: Parallels between Industry & Expeditionary Warfare, by Mr. Andrew Jones, Vice President UPS Supply Chain Solutions

Panel Presentations:

- Using Logistics to Gain Competitive Advantage: Parallels between Industry & Expeditionary Warfare, by Mr. Andrew Jones, Vice President UPS Supply Chain Solutions
- Seabasing Logistics CONOPs, by Mr. Jonathan Kaskin, OPNAV N42, Director Strategic Mobility/Combat Logistics Division
- Seabasing a TRANSCOM Perspective, by Captain Craig Galloway, USN, US Transportation Command, J5A
- DLA Afloat, by Col Jeff Hill, Chief, Distribution Management Division, Defense Logistics Agency
- Sustaining the Seabase a View…, by Mr. Nicholas Linkowitz, HQMC I&L (Code LPV)
- Sustaining the Sea Base, by Mr. Stephen Carmel, Maersk Line, Ltd.
- NDIA Expeditionary Warfare Division Seabasing Sudy Brief, by Mr. Paul Bishop, The Bishop Group

Session Wrap-up::

- NDIA Seabasing Study: Logistics Section, by Mr. Robert Luby, Jr., Vice President Supply Chain Management, Public Sector Leader, IBM

Session - Force Multipliers for The Joint Battlespace:
Panel Presentations:

- Ship Acquisition, by Rear Admiral Charles Hamilton, USN, Program Executive Officer, Ships

- Joint Battlespace Force Multipliers, by Rear Admiral William Landay, USN, Program Executive Officer, Littoral and Mine Warfare
- Seabasing a National Imperative for the Joint Battlespace, by Brigadier General Thomas Conant, USMC, Assistant Deputy Commandant for Combat Development and Integration
- Force Multipliers for the Joint Battlespace: Issues, Challenges and Opportunities, Brigadier General Andrew S. Dichter, USAF, Deputy Director for Joint Integration, Directorate of Operational Capability Requirements, Deputy Chief of Staff for Air and Space Operations, Headquarters, USAF
- Naval Research: A Statutory Mission, Mr. George Solhan, ONR, Director Naval Expeditionary Maneuver Warfare and Combating Terrorism S&T Division

Thursday, 27 October 2005

- Marine Aviation Transformation: The Future is Now, Lieutenant General Michael A. Hough, USMC, Deputy Commandant for Aviation
- Combating Terrorism with Technology, Mr. Roger Smith, Deputy Assistant Secretary of The Navy, Littoral and Mine Warfare, "Combating Terrorism with Technology"

Session - Rapid Acquisition to Support Today's Joint Operational Needs:

- Rapid Acquisition to Support Today's Joint Operational Needs, by Colonel Michael Mulligan, USMC, product Group Director, Infantry Weapons Systems, MARCORSYSCOM
- Rapid Equipping Force Streamlined Acquisition Process, by Colonel Robert Lovett, USA, Project Manager, US Army Rapid Equipping Force
- Spiral Development in Wartime, by Lieutenant Colonel Paul Hastert, USAF, Mission Planning / Mission Rehearsal Officer
- Urgent Requirements - an I MEF G-9 Perspective, by Lieutenant Colonel John M. Pioli, USMC, I MEF G9, Innovation Technology

Monday, October 24, 2005

8:00 a.m.	Annual Golf Tournament-Shotgun Start Sponsored by Northrop Grumman	Nicklaus Golf Course
3:00 p.m. - 7:00 p.m	Registration Open	St. Andrew's Foyer
3:00 p.m.	Cyber Café Opens	Spanish Moss "A"
3:00 p.m. - 4:30 p.m.	Spouse Welcoming Tea	Palms Court Terrace
6:00 p.m. - 7:00 p.m.	Hosted Reception Sponsored by Trident Systems	Display Area
7:00 p.m. - 9:00 p.m.	Dinner Guest Speaker: Captain Richard S. Callas, USN Commanding Officer, USS Iwo Jima (LHD 7) Naval Expeditionary Force Response to Katrina	Grand Lagoon Ballroom

Tuesday, October 25, 2005

7:00 a.m.	Registration	
7:00 a.m.	Continental Breakfast Sponsored by ARINC	Display Area

Opening Session

8:00 a.m. - 8:05 a.m.	Call to Order Andy Fosina Northrop Grumman Conference Chairman	St. Andrews Ballroom
8:05 a.m. -8:10 a.m.	Welcome to Panama City Captain Vito Jimenez, USN, Commanding Officer, Naval Surface Warfare Center, Panama City	
8:10 a.m. - 8:20 a.m.	Major General Harry W. Jenkins, USMC, (Ret) ITT Industries, Defense NDIA Expeditionary Warfare Division Chairman	
8:20 a.m. - 8:30 a.m.	Lieutenant General Lawrence P. Farrell, Jr., USAF (Ret) President and CEO, NDIA	
8:30 a.m. - 9:30 a.m.	Major General Gordon C. Nash, USMC OPNAV N75, Director, Expeditionary Warfare Division	
9:30 a.m. – 10:00 a.m.	Break Sponsored by Raytheon Company	
10:00 a.m. - 10:45 a.m.	RADM Patrick M. Stillman, USCG PEO, Integrated Deepwater System Commandant (G-D)	
10:45 a.m. - 11:30 a.m.	Vice Admiral Justin D. McCarthy, SC, USN, OPNAV N4, Director of Material Readiness and Logistics	
11:30 a.m. - 12:45 p.m.	Networking Luncheon Please see handout for buffet arrangement	Grand Lagoon Ballroom

Joint Battlespace Awareness and Command and Control
Session Chairman: Mr. Kevin Gordon, SAIC

Session Focus: The coherent integration of information and knowledge management necessary for successful Joint and Coalition Battlespace Management & Command and Control (C2) - focusing/sustaining transformation. The session will focus on the issues, domain challenges, and opportunities facing Joint and Coalition partners in the areas of Joint system integration and consolidation, and priorities of implementation.

12:50 p.m. – 1:00 p.m.	Mr. Kevin Gordon, SAIC	
1:00 p.m.	MV 22 Arrives at NSWC PC Helo Pad	
1:00 p.m. - 2:15 p.m.	Panel Presentations: Captain R. Simon, USN, Navy, Director Force Net, NETWARCOM Colonel R. McFarland, USMC, Director, C2 Integration Division Expeditionary Force Development Center, MCCDC Colonel James B. Henderson, USA, Army, Land WarNet Colonel Greg Pietrocola, USAF, Advisor to the Commander, AFC2ISR Center, Langley AFB, VA Mr. George V. Galdorisi, Director, Decision Support Group, SPAWAR Systems Center, San Diego Moderated by: Mr. George V. Galdorisi	
1:40 p.m.	Two Buses depart Marriott for MV 22 tour at NSWC PC. Scheduled time for return to the Marriott is 3:20 p.m.	Sign up in advance at the conference registration desk
2:15 p.m. - 2:45 p.m.	Break Sponsored by General Dynamics C4 Systems	
2:35 p.m.	Two Buses depart Marriott for MV 22 tour at NSWC PC. Scheduled time for return to the Marriott is 4:15 p.m.	Sign up in advance at the conference registration desk
2:45 p.m. - 3:15 p.m.	Panel Question and Answer period	
3:15 p.m. - 3:30 p.m.	Wrap-Up Speaker: Rear Admiral A.M. Macy Jr., USN, Commander, Naval Surface Warfare Center, Deputy Commander for Warfare Systems Engineering, Naval Sea Systems Command	
3:30 p.m.	Two Buses depart Marriott for MV 22 tour at NSWC PC. Scheduled time for return to the Marriott is 5:10 p.m.	Sign up in advance at the conference registration desk
5:30 p.m. - 7:00 p.m.	Hosted Networking Reception Sponsored by Austal, BAE Systems, Base - X Shelters, The Boeing Company, Lockheed Martin Company, and SAIC	Grand Lagoon Ballroom and Display Area
6:15 p.m.	Bay County Military Affairs Committee Presentations	Grand Lagoon Ballroom

Wednesday, October 26, 2005

6:45 a.m.	Registration	
6:45 a.m. - 7:30 a.m.	Continental Breakfast Sponsored by AeroVironment	Display Area
7:30 a.m. - 8:30 a.m.	General Michael W. Hagee, USMC, Commandant of the Marine Corps Admiral Michael G. Mullen, USN, Chief of Naval Operations	
8:30 a.m. - 8:45 a.m.	Short Break	
8:30 a.m.	Two Buses depart Marriott for MV 22 tour at NSWC PC. Scheduled time for return to the Marriott is 10:10 a.m.	Sign up in advance at the conference registration desk

Sustaining the Sea Base
Session Chairman: Vice Admiral James Amerault, USN (Ret), Alion-JJMA Maritime Section

Session Focus: Leveraging our country's long history of successful amphibious warfare and expeditionary operations in the maritime environment to enable us to not only fight, but also sustain forces totally "from the sea", presents significant challenges to the logistician. This session will examine those challenges from the joint perspective, as well as that of individual services, with a view toward identifying and clarifying the issues and opportunities for government and industry to "deliver the goods" from the sea base.

8:45 a.m. - 9:15 a.m.	Mr. Andrew D. Jones, Vice President UPS Supply Chain Solutions	
9:15 a.m. - 10:15 a.m.	Panel Presentations: Mr. Jonathan Kaskin, OPNAV N42, Director Strategic Mobility/Combat Logistics Division Colonel (Promotable) Robin Swan, USA, Director Concept Development and Experimentation, Futures Center, HQ Army Training and Doctrine Command Captain Craig Galloway, USN, US Transportation Command, J5A Mr. Frederick Baillie, Executive Director, J37, Defense Logistics Agency Mr. Nicholas Linkowitz, HQMC I&L (Code LPV) Moderated by: Mr. Stephen Carmel, Maersk Line, Ltd.	
9:25 a.m.	Two Buses depart Marriott for MV 22 tour at NSWC PC. Scheduled time for return to the Marriott is 11:05 a.m.	Sign up in advance at the conference registration desk
10:15 a.m. - 10:45 a.m.	Break Sponsored by Bell Helicopter, A Textron Company	
10:20 a.m.	Two Buses depart Marriott for MV 22 tour at NSWC PC. Scheduled time for return to the Marriott is 12:00 a.m.	Sign up in advance at the conference registration desk
10:45 a.m. - 11:15 a.m.	Panel Question and Answer period	

11:15 a.m. - 11:30 a.m.	NDIA Expeditionary Warfare Division Seabasing Study Brief Mr. Paul Bishop, The Bishop Group
11:30 a.m. - 11:45 a.m.	Wrap-Up Speaker: Mr. Robert Luby, Jr., Vice President Supply Chain Management, Public Sector Leader, IBM
11:45 a.m. - 1:45 p.m.	Lunch Speaker: Lieutenant General James M. Mattis, USMC Commanding General Marine Corps Combat Development Command
1:00 p.m.	MV 22 Departs NSWC PC

Force Multipliers for The Joint Battlespace
Session Chairman: Rear Admiral Bill Fogarty, USN (Ret), BAE Systems

Session Focus: The realities of restrained defense budgets, coupled with the requirements of the Joint Warfighters, necessitate innovative approaches to achieving force multipliers. This session will focus on the issues, challenges and opportunities in the areas of platforms, sensors, weapon systems, automation, and reduced manning in order to provide the warfighters the most "bang for the buck".

1:45 p.m. - 2:45p.m.	Panel Presentations Rear Admiral Charles Hamilton, USN, Program Executive Officer Ships Rear Admiral William Landay, USN, Program Executive Officer Littoral and Mine Warfare Brigadier General Thomas Conant, USMC, Assistant Deputy Commandant for Combat Development and Integration Brigadier General Andrew S. Dichter, USAF, Deputy Director for Joint Integration, Directorate of Operational Capability Requirements, Deputy Chief of Staff for Air and Space Operations, Headquarters, USAF Mr. George Solhan, ONR, Director, Naval Expeditionary Maneuver Warfare and Combating Terrorism S and T Division Moderated by: Vice Admiral Hank Mustin, USN (Ret)
2:45 p.m. - 3:15 p.m.	Break Sponsored by Maersk Line, Limited
3:15 p.m. - 3:45 p.m.	Panel Question and Answer Period
3:45 p.m. - 4:00 p.m	Wrap-Up Speaker: Vice Admiral Doug Katz, USN (Ret)
4:45 p.m.	First bus departs for NSWC-PC
5:00 p.m. - 7:00 p.m.	NSWC-PC Open House And Networking Reception Sponsored by EDO Corporation
7:00 p.m. - 10:00 p.m.	Pig Roast
10:00 p.m.	Last bus departs NSWC-PC for Bay Point Marriott

Thursday, October 27, 2005

6:45 a.m. - 7:30 a.m.	Continental Breakfast Sponsored by Triton Services, Inc.	Display Area
7:30 a.m. - 8:15 a.m.	Lieutenant General Michael A. Hough, USMC Deputy Commandant for Aviation	
8:15 a.m. - 9:00 a.m	Mr. Roger Smith, Deputy Assistant Secretary of The Navy, Littoral and Mine Warfare "Combating Terrorism with Technology"	
9 a.m. – 9:15 a.m.	Short Break	

Acquisition To Support Today's Joint Operational Needs
Session Chairman: Mr. Mike Janay

Session Focus: The recent war fighting experiences in Central Command AOR produced urgent needs for material solutions to enhance the warfighters ability to conduct operations. This session will focus on the issues and challenges the services face in delivering these solutions to the operators, and review service procedures for procurement that guide industry's rapid response.

9:15 a.m. – 9:40 a.m.	Colonel Michael Mulligan, USMC, Product Group Director, Infantry Weapons Systems, MARCORSYSCOM	
9:40 a.m. – 10:05 a.m.	Lieutenant Colonel William Sanders, USA Chief, Field Assistance Division, US Special Operations Command	
10:05 a.m. – 10:30 a.m.	Break Sponsored by Terrain Experts, Terrex	
10:30 a.m. – 10:55 a.m.	Colonel Robert Lovett, USA Project Manager, US Army Rapid Equipping Force	
10:55 a.m. – 11:20 a.m.	Lieutenant Colonel Paul Hastert, USAF Mission Planning / Mission Rehearsal Officer	
11:20 a.m. – 11:45 a.m.	Lieutenant Colonel John M. Paoli, USMC I MEF G9, Innovation Technology	
11:45 a.m. - 12:00 p.m.	Wrap-Up Speaker: Mr. Mike Janay	
12:00 p.m.	Lunch Conference adjourns Upon completion of lunch	Grand Lagoon

11th Annual Expeditionary Warfare Conference Dates: October 23 - 26, 2006

NATIONAL DEFENSE INDUSTRIAL ASSOCIATION
STRENGTH THROUGH INDUSTRY & TECHNOLOGY

EXPEDITIONARY WARFARE DIVISION

NDIA SEABASING STUDY

LOGISTICS SECTION

Paul Bishop
Co-Director for Logistics

Tasking

- **Terms of Reference (TOR)**
  - Sets study requirements
  - Signed by Dr. Skinner (LWS-PAD) and Gen Jenkins (NDIA Expeditionary Warfare Division Chairman)
- ***Identify commercial technologies that hold promise for bridging Seabasing Gaps***
- ***Provide insights into demand for technologies***

Joint Concepts

- **Seabasing Joint Integrating Concept**
  - Range of Military Operations
  - 2015 to 2025 timeframe
  - *Near Simultaneous Operations*
    - *Major Combat Operation (MCO)*
    - *Humanitarian Assistance (HA)*
    - *Counter-Insurgency Operation (COIN)*
- **Focused Logistics Joint Functional Concept**
  - Joint and Fully Integrated
  - Logistics Transformation
    - Improve Technology
    - Innovations to Processes, Systems & Organizations
    - Commercial Best Practices

Study Team

Vice Admiral James Amerault, USN (Ret)
ALION-JJMA

STUDY DIRECTOR

PAUL BISHOP
COALESCENT – BISHOP GROUP

CO-DIRECTOR
LOGISTICS

DICK JONES
ALION – JJMA

CO-DIRECTOR
HIGH SPEED
CONNECTORS/
SHIP INTERFACES

RON WILGENBUSCH
Burdeshaw

CO-DIRECTOR
C4I

Logistics Team

Randy Bales
Raytheon
Integrated Defense Systems

Bernie Boucher
St. Onge Engineering Company

Bill Corcoran
Maersk Line

Dave Drenon
MacGREGOR

SEABASING: LOGISTICS GAPS

a study for the

LITTORAL WARFARE SYSTEMS PRODUCT AREA DIRECTOR

2005

NATIONAL DEFENSE INDUSTRIAL ASSOCIATION
STRENGTH THROUGH INDUSTRY & TECHNOLOGY

Skip Gaskill
Engineered Support Systems, Inc.

Dennis Gilhooley
IBM

Stretch Phillips
BAE SYSTEMS

Other Supporting Team Members

Commercial Analogy

- **Major Planned Industrial Facility**
  - Inter & Intramodal Transportation Hub
  - Warehouse & Distribution Facility
  - Fuel Terminal
  - Hospital
  - Repair Facility
  - Desalinization Plant
  - Pipelines
  - Hotels and Houses
- All tied together with extensive enterprise software & communications
- *And all at sea!*

NATIONAL DEFENSE INDUSTRIAL ASSOCIATION
STRENGTH THROUGH INDUSTRY & TECHNOLOGY

Distribution Facility

EXPEDITIONARY WARFARE DIVISION



Seabasing Capability Gaps

GAP	TITLE
1	Interface Between Large and Small Vessels
2	Interface Between Large Vessels
3	Heavy Lift Surface Containers
4	Sea Base Capable, Heavy Lift Vertical Connector
5	Automated and Integrated Warehousing
6	Distributed, Collaborative Operational Logistics Planning
7	Total Asset Visibility
8	Advanced Simulators for Rehearsal
9	Cargo Transfer at Sea
10	Ships of Appropriate Design
11	Joint Logistics Support System
12	Sea State 4 Intra-Theater Lift
* 13	*Shared Communication Architecture*
14	Decontamination for Reconstitution of Forces
* 15	*On-Station Reload of NSFS Assets*
16	Sea-Based Maintenance
* 17	*Bulk Liquid Handling & Transfer*
18	Sea-Based Medical

Logistics Gaps

CAPABILITY GAPS ASSIGNED TO LOGISTICS GROUP	
5A	Selective Offload/Onload
5B	Material Handling Strike Up/ Strike Down (SUSD)
5C	Modular Packaging/Repackaging En Route
6	Distributed, Collaborative Operational Logistics Planning
7	Total Asset Visibility
11	Joint Logistics Support System
16	Sea-Based Maintenance
18	Sea-Based Medical

LOGISTICS GROUP INTEREST	
13	Shared Communications Architecture
15	On-Station Reload of NSFS Assets
17	Bulk Liquid Handling and Transfer

Today's Briefing

- Two Gaps
  - Gap 5 Warehousing
  - Gap 7 Total Asset Visibility
- Gap Discussion
  - Capability required
  - Commercial technologies
  - Spectrum of solutions
  - Examples
- Observations & Conclusions
  - Recommendations
  - Box Score

Gap 5 - Warehousing

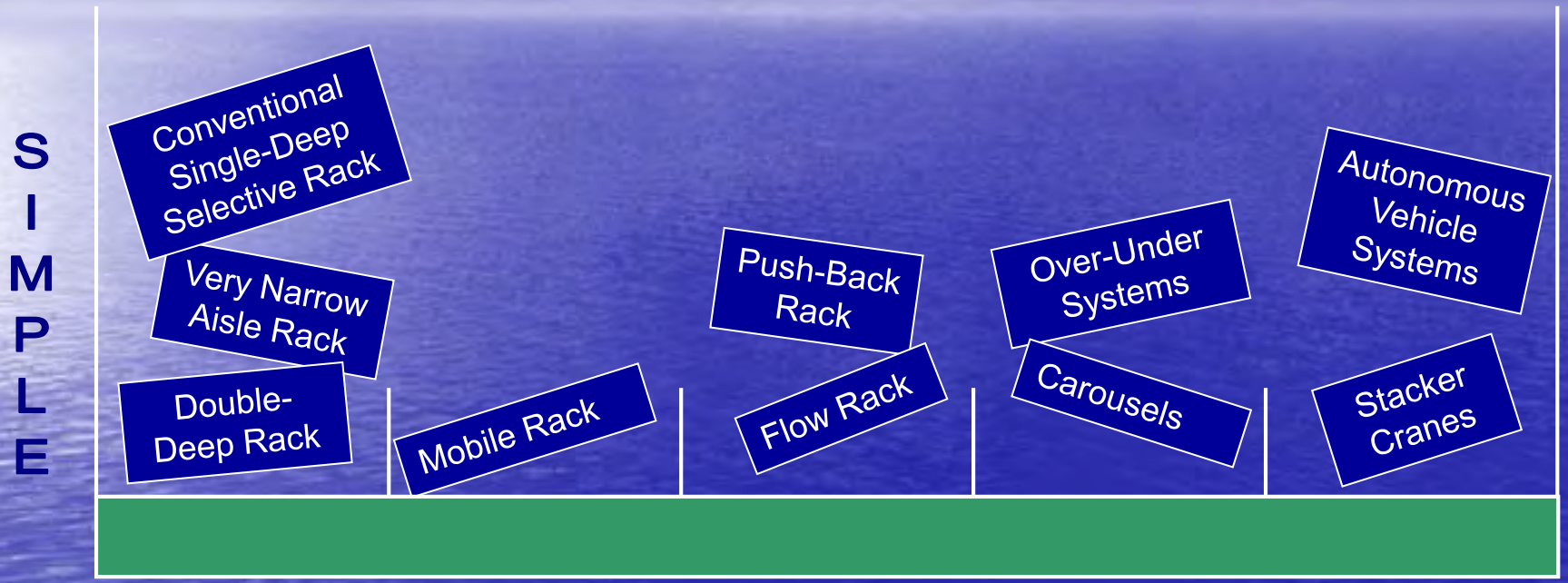
- Need
  - Automated & integrated warehousing is a major function of Seabasing
- Subgaps
  - 5A Selective offload/onload (selective access)
  - 5B Strike up/Strike down
  - 5C Modular packaging/repackaging enroute

5A - Selective Offload/Onload

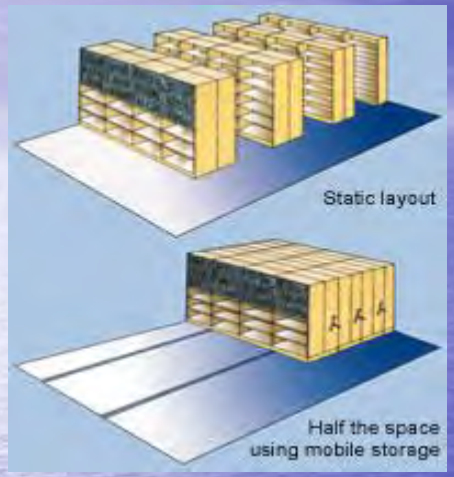
- Capability Required
  - *Selective access* for ordnance, vehicles, and stores
- Spectrum
  - Warehouse items – not containers
  - Case of toilet paper or specific repair part
  - Vehicles, gun barrels, ammunition
- Package Size
  - Small maintenance part
  - Case goods
  - Specialized Container

Gap 5A – Selective Offload/Onload

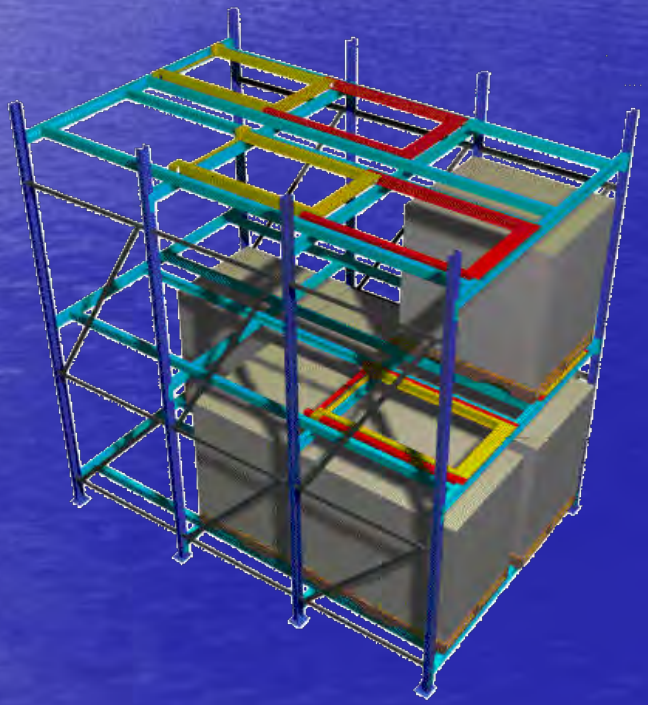
(Selective Access)



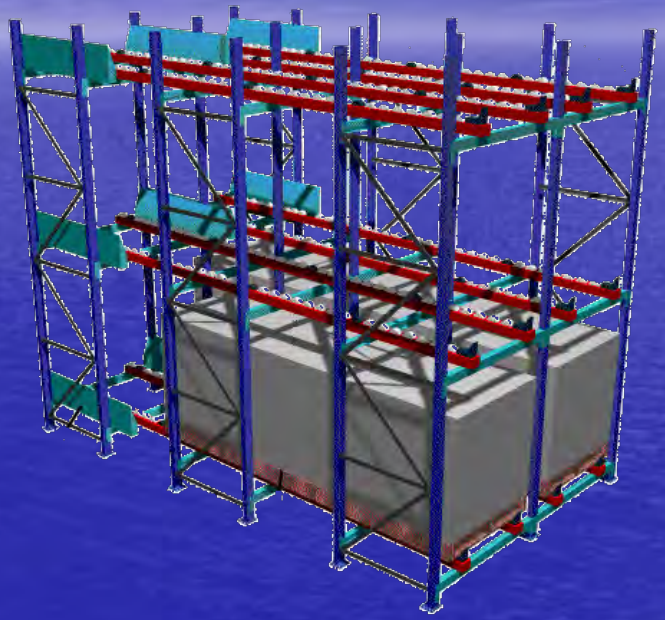
Static and Dynamic Racking Systems



MOBILE RACK
OPERATING CONCEPT

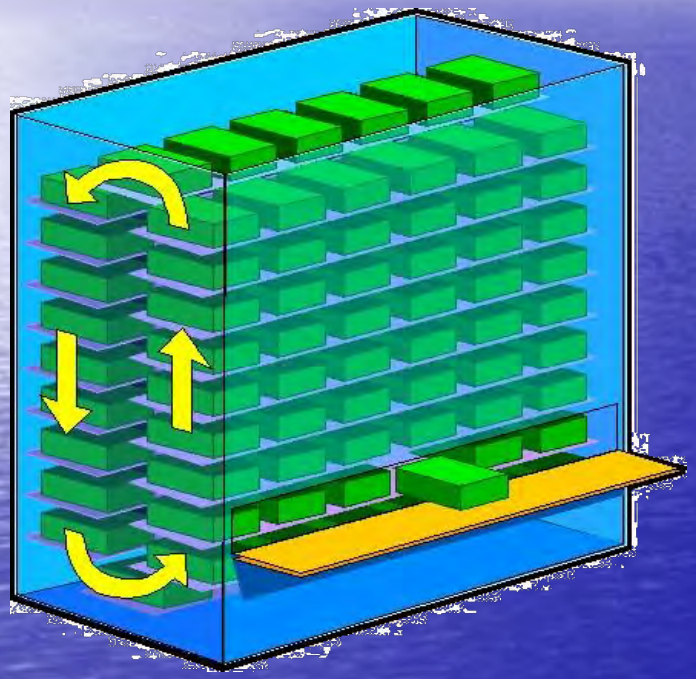


PUSH-BACK RACK

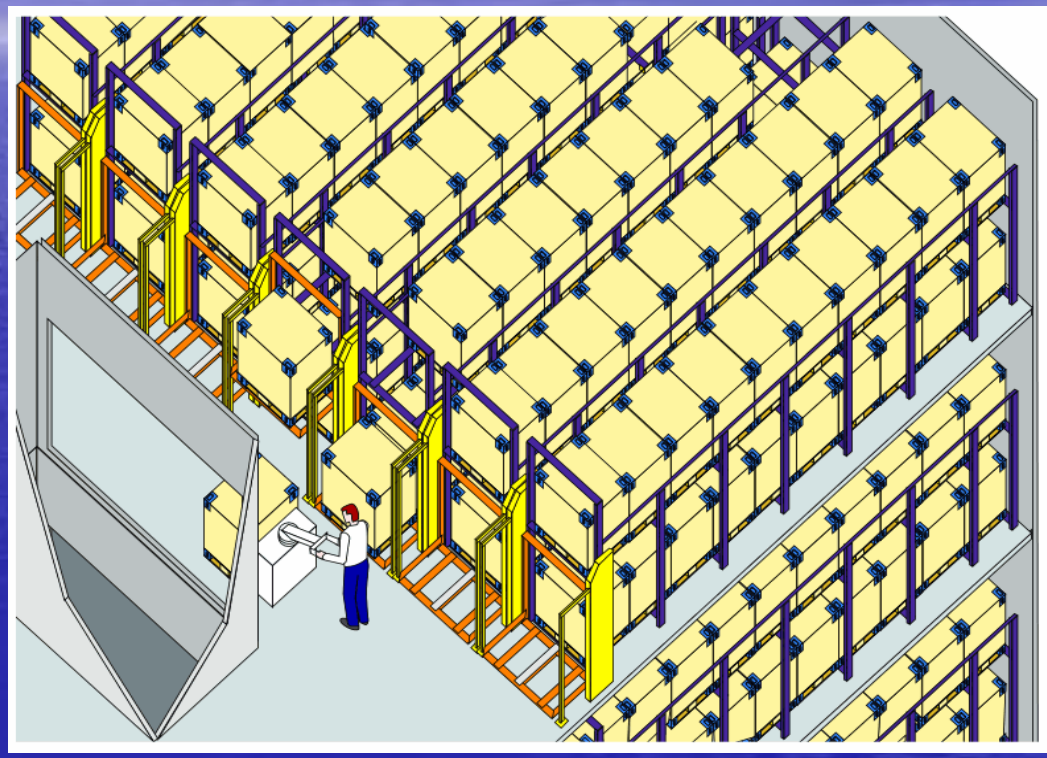


PALLET FLOW RACK

Mechanized Storage and Staging Devices



VERTICAL CAROUSEL



ARTIST'S CONCEPTION OF HOLD SPACES CONTAINING OVER/UNDER MACHINES

Automated Storage and Retrieval Systems

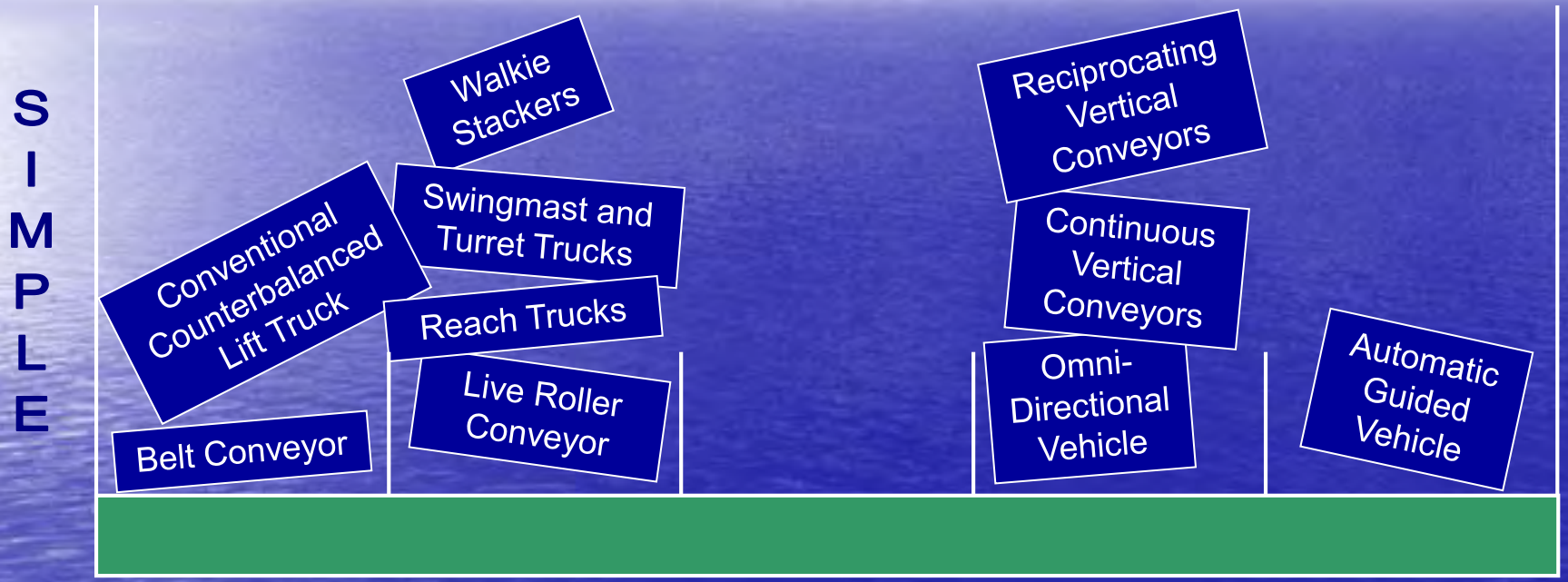


AS/RS MACHINE



RETROTECH ACCESS SYSTEM
AUTONOMOUS VEHICLE

5B – Material Handling Strike Up/Strike Down

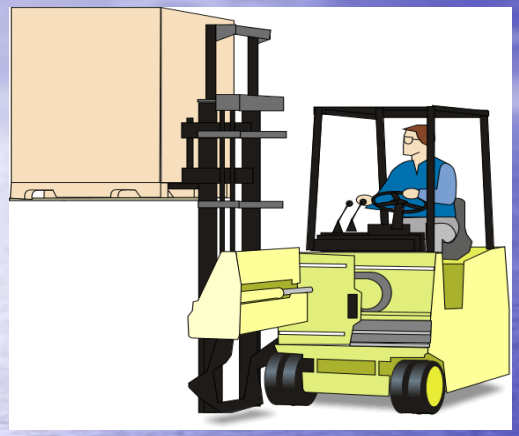


CONVENTIONAL VEHICLES AND CONVEYORS

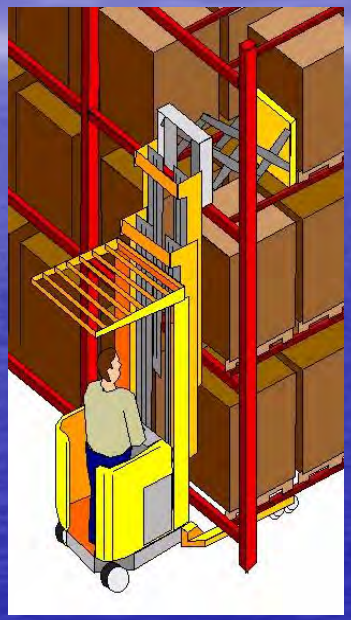
ADVANCED VEHICLES AND CONVEYORS

AUTONOMOUS SYSTEMS AND PALLETIZERS

Conventional Vehicles and Conveyors



SWINGMAST TRUCK



REACH TRUCK



WALKIE STACKER



TURRET TRUCK

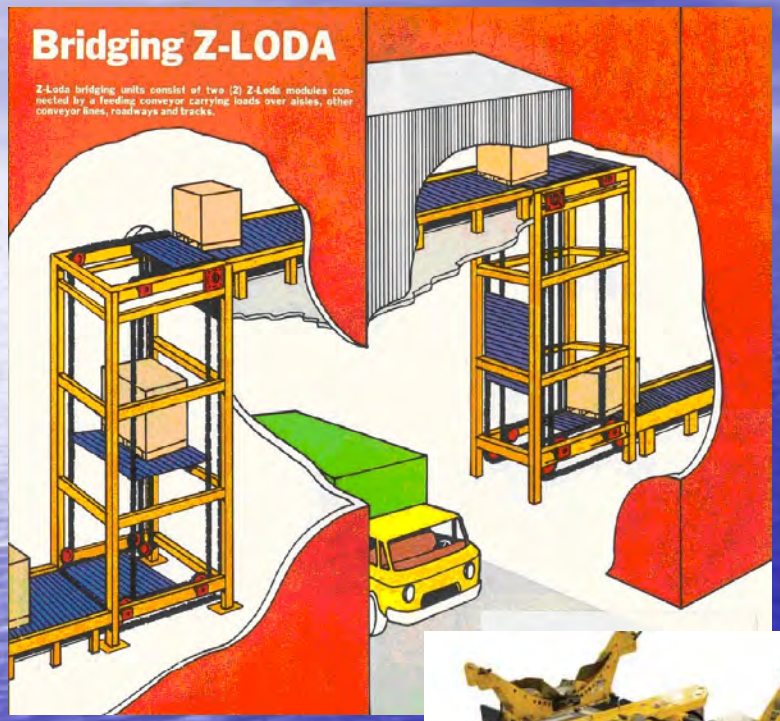


LIVE ROLLER CONVEYOR

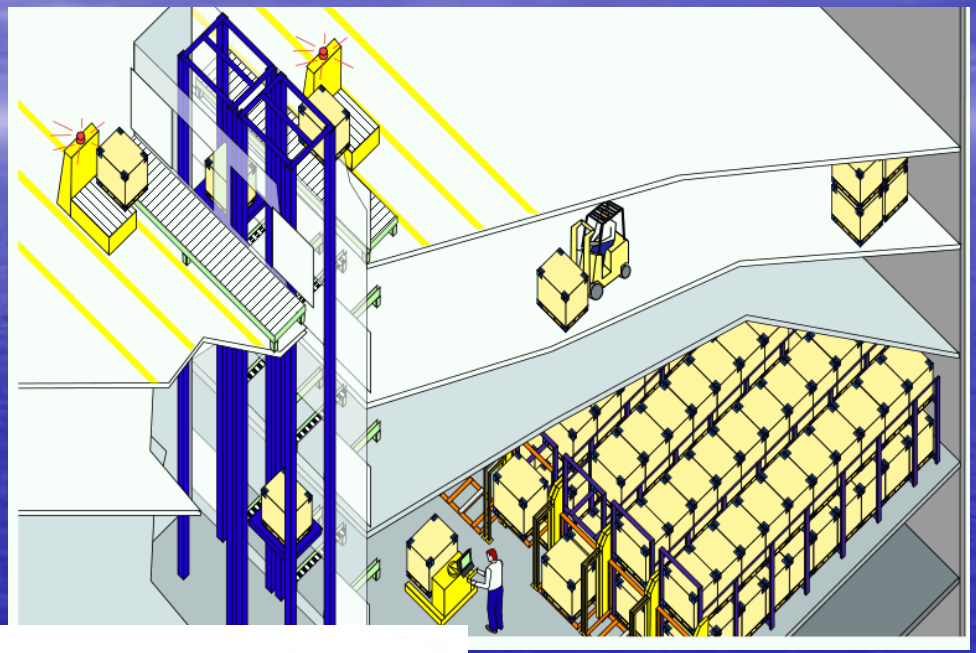
NATIONAL DEFENSE INDUSTRIAL ASSOCIATION
STRENGTH THROUGH INDUSTRY & TECHNOLOGY

Advanced Vehicles and Conveyors

EXPEDITIONARY WARFARE DIVISION



CONTINUOUS VERTICAL CONVEYORS



RECIPROCATING VERTICAL CONVEYORS



AIRTRAX OMNI VEHICLE

7 – Total Asset Visibility

- Joint Total Asset Visibility
  - Defense Departments Automated Information Capability for Tracking Equipment, Personnel, and Supplies.
- Definition
  - JTAV Is the capability to provide users with *timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, and supplies.*
  - Facilitates the capability to act upon that information to improve overall performance of DoD's logistics practices.

7 – Total Asset Visibility

(Enterprise-Wide Awareness)



Observations

- Joint and Fully Integrated Logistics
  - Will include commercial entities
    - FedEx – UPS – DHL etc.
    - Vendors
    - Contractors
- Commercial Facilities are Typically Large and Automated
  - Focus
    - Throughput
    - Enterprise Connectivity
    - Vendor, enterprise, shipper, customer interaction

More Observations

- Ordnance
  - Most requirements seen today include ordnance handling as a requirement – is this really what is desired?
  - Requirements should be tailored for what is anticipated e.g. maintenance parts, comsumables etc.
- Resource Sponsorship
  - No single resource sponsor responsible for integrating seabasing architecture

Terms & Usage

- Some terms are not fully defined
- Selectivity
  - *100% Selectivity* - Directly access any load
  - *Selective* - Access after move
  - *Type Selective* - Direct access one load of any type
- Aging and Spoilage
  - *Non-perishable items* (canned peas)
  - *Time-sensitive items* (batteries)
  - *Perishable items* (vegetables)

Recommendations

- C4I
  - Look at Logistics Command and Control in an integrated manner – *domain expertise is an issue*
  - Establish separate logistics and medical networks LOGNET & MEDNET
- Commercial Entities & Practices
  - Incorporate commercial logistics capability throughout the Sea Base
  - Always interface with commercial systems
  - *Seek domain expertise from commercial sector*

Logistics Gaps Box Score

CAPABILITY GAPS ASSIGNED TO LOGISTICS GROUP	
5A	Selective Offload/Onload
5B	Material Handling Strike Up/ Strike Down (SUSD)
5C	Modular Packaging/Repackaging En Route
6	Distributed, Collaborative Operational Logistics Planning
7	Total Asset Visibility
11	Joint Logistics Support System
16	Sea-Based Maintenance
18	Sea-Based Medical

LOGISTICS GROUP INTEREST	
13	Shared Communications Architecture
15	On-Station Reload or NSFS Assets
17	Bulk Liquid Handling and Transfer

Conclusions

- Technology used in industry can be of high value but significant issues may arise
  - Motion & Flexing
  - Hull constraints
  - Marinization
- *Architectures* should be developed that will satisfy user needs and resource realism
  - Seabase
  - Logistics Systems
- The architecture chosen will drive the solutions

Logistics Team

Randy Bales
Raytheon
Integrated Defense Systems

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St. Onge Company

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Maersk Line

Dave Drenon
MacGREGOR

SEABASING: LOGISTICS GAPS

a study for the

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2005

NATIONAL DEFENSE INDUSTRIAL ASSOCIATION
STRENGTH THROUGH INDUSTRY & TECHNOLOGY

Skip Gaskill
ESSI
Engineered Support Systems, Inc.

Dennis Gilhooley
IBM

Stretch Phillips
BAE SYSTEMS

Other Supporting Team Members

NDIA
NATIONAL DEFENSE INDUSTRIAL ASSOCIATION
STRENGTH THROUGH INDUSTRY & TECHNOLOGY

EWD
EXPEDITIONARY WARFARE DIVISION

Presenting the:

NDIA
10th Annual Expeditionary Warfare Conference

"Joint Expeditionary Forces... Winning Today and Tomorrow"



In coordination with:

OPNAV (N75), Director, Expeditionary Warfare Division
HQTRS USMC (Plans, Policies and Operations)
HQ USCG (G-O)
Naval Surface Warfare Center - Panama City

Event #6700

October 24 - 27, 2005

Marriott Bay Point Resort Village
Golf & Yacht Club
Panama City, Florida

INTRODUCTION

This is the tenth consecutive year NDIA has sponsored this Expeditionary Warfare Conference. The conference continues to grow in importance to both industry and DOD attendees. The conference has a sustained level of attendance at over 700, including over 50 active duty and retired flag and general officers, and their civilian equivalents. Once again, NDIA invites industry to join this conference to hear operational, programmatic, and acquisition defense leaders discuss new concepts, current programs, and future intentions. Join us to discuss with these leaders the myriad of issues that will continue to effect how our Nation and our premier expeditionary forces deal with the security challenges and global threats of the 21st Century.

OBJECTIVES

- To provide an opportunity for the Services to provide clear statements of their requirements and intent to industry, service laboratories, and other interested parties
- An opportunity for frank dialogue between the military services, industry, and other attendees
- A celebration of the atmosphere of trust and cooperation that exists between the military services and industry.

QUESTIONS AND ISSUES FOR PANEL DISCUSSION

A primary objective of the annual Expeditionary Warfare Conference is to facilitate and promote discussion and dialogue between industry and senior service, military and civilian, leadership to the benefit of both interests and DoD as a whole. Certain theme sessions of the conference are composed of short presentations from a panel of senior leaders and a panel discussion period between themselves and the audience, stimulated by questions and issues from the audience. Each panel member will offer brief remarks on the issues and challenges from his/her perspective with respect to the theme and focus of the session. Questions from the audience and comments or observations from the Q/A period moderator will stimulate the panel discussion and question period. The moderator for each session is experienced with the topic and issues at hand. Active attendee participation is desired and strongly encouraged.

ATTIRE

Civilian Attire: Appropriate attire for the entire conference, including Monday evening dinner is business casual. Tie and jacket are not required. Military attire: equivalent summer uniform.

GOLF TOURNAMENT

Be among the first to play the new Jack Nicklaus design golf course. Many will remember the Lagoon Legend course at Bay Point. Since last year's conference that course has been completely redesigned to be more "resort friendly" and is now a Nicklaus design, 18 hole, 7,000 yard course. The grand opening day is September 17th, just over a month before this year's conference. So bring your clubs and come (Sunday) because we will have a shotgun start at 8AM, on Monday, October 24th.

Monday, October 24, 2005

8:00 a.m.	Annual Golf Tournament-Shotgun Start Sponsored by Northrop Grumman Ship Systems	Nicklaus Golf Course
3:00 p.m. - 7:00 p.m.	Early Registration	St. Andrew's Foyer
3:00 p.m.	Cyber Café Opens	Spanish Moss "A"
3:00 p.m. - 4:30 p.m.	Spouse Welcoming Tea Spouses are invited to get acquainted and plan their activities during the conference (Please register your spouse for this complimentary event)	Palms Court Terrace
6:00 p.m. - 7:00 p.m	Reception Sponsored by Trident Systems	Display Area
7:00 p.m. - 9:00 p.m.	Dinner Guest Speaker: General James L. Jones, USMC Commander, U.S. European Command; Supreme Allied Commander Europe; and Commanding Officer Allied Command Operations (Invited)	Grand Lagoon Ballroom

Tuesday, October 25, 2005

Opening Session

7:00 a.m.	Registration	
7:00 a.m.	Continental Breakfast Sponsored by ARINC	Display Area
8:00 a.m. - 8:05 a.m.	Call to Order Mr. Andy Fosina Northrop Grumman Mission Systems Conference Chairman	St. Andrews
8:05 a.m. -8:10 a.m.	Welcome to Panama City Captain Vito Jimenez, USN, Commanding Officer Mr. Kirk Dye, Technical Operations Manager, Naval Surface Warfare Center, Panama City	
8:10 a.m. - 8:20 a.m.	NDIA Welcome Major General Harry W. Jenkins, USMC, (Ret) ITT Industries, Defense NDIA Expeditionary Warfare Division Chairman	
8:20 a.m. - 8:30 a.m.	Lieutenant General Lawrence P. Farrell, Jr., USAF (Ret) President and CEO, NDIA	
8:30 a.m. - 9:15 a.m.	General T.M. Moseley, USAF Chief of Staff, United States Air Force (Invited)	
9:15 a.m. - 9:45 a.m.	Break Sponsored by Raytheon Company	
9:45 a.m. - 10:30 a.m.	Vice Admiral Justin D. McCarthy, SC, USN, OPNAV N4, Director of Material Readiness and Logistics	
10:30 a.m. - 11:30 a.m.	Major General Gordon C. Nash, USMC OPNAV N75, Director, Expeditionary Warfare Division	
11:30 a.m. - 12:45 p.m.	Networking Luncheon	Grand Lagoon Ballroom
12:45 p.m. - 1:30 p.m.	Joint Expeditionary Warfare in the Korea AO Major General Duane D. Thiessen, USMC Commander, United States Marine Corps Forces Korea and Assistant Chief of Staff, U/C/J5, United Nations Command/Combined Forces Command/United States Forces Koresa (Invited)	

AGENDA

AGENDA

Joint Battlespace Awareness and Command and Control

Session Chairman: Mr. Kevin Gordon, SAIC

Session Focus: The coherent integration of information and knowledge management necessary for successful Joint and Coalition Battlespace Management & Command and Control (C2) - focusing/sustaining transformation. The session will focus on the issues, domain challenges, and opportunities facing Joint and Coalition partners in the areas of Joint system integration and consolidation, and priorities of implementation.

1:35 p.m. - 2:45 p.m.	Panel Presentations: Colonel R. McFarland, USMC, Director, Command and Control Integration Division, Expeditionary Force Development Center, MCCDC Colonel S. Whitehead, USA, Army, Land WarNet (Invited) Colonel G. Giles, USAF, Air Force Constellation (Invited) Captain R. Simon, USN, Navy, Director ForceNet, NETWARCOM Mr. George V. Galdorisi, Director, Decision Support Group, SPAWAR Systems Center, San Diego Moderated by: Mr. George V. Galdorisi	
2:45 p.m. - 3:15 p.m.	Break Sponsored by General Dynamics C4 Systems	
3:15 p.m. - 4:00 p.m.	Panel Question and Answer period	
4:00 p.m. - 4:15 p.m.	Wrap-Up Speaker: Rear Admiral A.M. Macy Jr., USN, Commander, Naval Surface Warfare Center Deputy Commander for Warfare Systems Engineering, Naval Sea Systems Command (Invited)	
5:30 p.m. - 7:00 p.m.	Hosted Networking Reception Sponored by Austal, BAE Systems, Base - X Shelters The Boeing Company, Lockheed Martin Company, SAIC	Grand Lagoon Ballroom/Display Area
6:15 p.m.	Bay County Military Affairs Committee Presentations	Grand Lagoon Ballroom

Wednesday, October 26, 2005

6:45 a.m.	Registration	
6:45 a.m. - 7:30 a.m.	Continental Breakfast Sponsored by AeroVironment	Display Area
7:30 a.m. - 8:15 a.m.	General Michael W. Hagee, USMC, Commandant of the Marine Corps Admiral Michael G. Mullen, USN, Chief of Naval Operations	
8:30 a.m. - 8:45 a.m.	Short Break	

Sustaining the Sea Base

Session Chairman: Vice Admiral James Amerault, USN (Ret), Alion-JJMA Maritime Section

Session Focus: Leveraging our country's long history of successful amphibious warfare and expeditionary operations in the maritime environment to enable us to not only fight, but also sustain forces totally "from the sea", presents significant challenges to the logistician. This session will examine those challenges from the joint perspective, as well as that of individual services, with a view toward identifying and clarifying the issues and opportunities for government and industry to "deliver the goods" from the sea base.

8:45 a.m. - 9:15 a.m.	*Speaker to be determined*
9:15 a.m. - 10:15 a.m.	Panel Presentations: Mr. Jonathan Kaskin, OPNAV N42, Director Strategic Mobility/Combat Logistics Division Brigadier General David Fastabend, USA, Deputy Director & Chief of Staff, Futures Center, HQ Army Training and Doctrine Command Captain Craig Galloway, USN, US Transportation Command, J5A Mr. Frederick Baillie, Executive Director, J37, Defense Logistics Agency Mr. Nicholas Linkowitz, HQMC I&L (Code LPV) Mr. Stephen Carmel, Maersk Line, Ltd. Moderaterd by: Mr. Jack Finnegan, MacGregor (USA), Inc.

10:15 a.m. - 10:45 a.m.	Break SponsoredBell Helicopter, A Textron Company
10:45 a.m. - 11:15 a.m.	Panel Question and Answer period
11:15 a.m. - 11:25 a.m.	NDIA Expeditionary Warfare Division Seabasing Study Brief Mr. Paul Bishop, The Bishop Group
11:25 a.m. - 11:40 a.m.	Wrap-Up Speaker: Vice Admiral James Amerault, USN (Ret), Alion-JJMA Maritime Section
11:45 a.m. - 1:15 p.m.	Lunch Speaker: Admiral John B. Nathman, USN, Commander, Fleet Forces Command (Invited)

Force Multipliers for The Joint Battlespace

Session Chairman: Rear Admiral Bill Fogarty, USN (Ret), BAE Systems

Session Focus: The realities of restrained defense budgets, coupled with the requirements of the Joint Warfighters, necessitate innovative approaches to achieving force multipliers. This session will focus on the issues, challenges and opportunities in the areas of platforms, sensors, weapon systems, automation, and reduced manning in order to provide the warfighters the most "bang for the buck".

1:30 p.m. - 2:15 p.m.	Lieutentant General James M. Mattis, USMC, Commanding General Marine Corps Combat Development Command
2:15 p.m. - 3:15 p.m.`	Panel Presentations: Rear Admiral Charles Hamilton, USN, Program Executive Officer Ships Rear Admiral William Landay, USN, Program Executive Officer Littoral and Mine Warfare Brigadier General Thomas Conant, USMC, Assistant Deputy Commandant for Combat Development and Integration Mr. George Solhan, ONR, Director, Naval Expeditionary Maneuver Warfare and Combating Terrorism S and T Division United States Air Force Representative *(to be determined)* Moderated by: Vice Admiral Hank Mustin, USN (Ret)
3:15 p.m. - 3:45 p.m.	Break Sponsored by Maersk Line, Limited
3:45 p.m. - 4:15 p.m.	Panel Question and Answer Period
4:30 p.m. - 4:45 p.m	Wrap-Up Speaker: Vice Admiral Doug Katz, USN (Ret)
4:45 p.m.	First bus departs for NSWC-PC
5:00 p.m. - 7:00 p.m.	NSWC-PC Open House Networking Reception Sponsored by EDO Corporation
7:00 p.m. - 10:00 p.m.	Pig Roast
10:00 p.m.	Last bus departs NSWC-PC for Bay Point Marriott

AGENDA

AGENDA

Thursday, October 27, 2005

6:45 a.m. - 7:30 a.m.	Continental Breakfast Sponsored by Triton Services, Inc.	Display Area
7:30 a.m. - 8:00 a.m.	Lieutenant General Michael A. Hough, USMC Deputy Commandant for Aviation (Invited)	
8:00 a.m. - 8:45 a.m.	The Honorable Kenneth J. Krieg Under Secretary of Defense for Acquisition Technology & Logistics (Invited)	

Rapid Acquisition to Support Today's Joint Operational Needs

Session Chairman: Mr. Mike Janay, AFM-USA, Inc.

Session Focus: The recent war fighting experiences in Central Command AOR produced urgent needs for material solutions to enhance the warfighters ability to conduct operations. This session will focus on the issues and challenges the services face in delivering these solutions to the operators, and review service procedures for procurement that guide industry's rapid response.

8:45 a.m. - 9:30 a.m.	The Honorable Roger Smith, Deputy Assistant Secretary of The Navy, Littoral and Mine Warfare Systems and Chairman, US Navy "Operation Respond"
9:30 a.m. - 10:00 a.m.	Brigadier General William D. Catto, USMC, Commanding General Marine Corps Systems Command
10:00 a.m. - 10:30 a.m.	Break Sponsored byTerrain Experts, Inc., TERREX
10:30 a.m. - 10:55 a.m.	Colonel Robet Lovett, USA Project Manager, US Army Rapid Equipping Force
10:55 a.m. - 11:20 a.m.	Lieutenant Colonel Paul Hastert, USAF Mission Planning / Mission Rehersal Officer
11:20 a.m. - 11:45 a.m.	Lieutenant Colonel William Sanders, USA Chief, Field Assistance Divsion, US Special Operations Command
11:45 a.m. - 12:00 p.m.	Wrap-Up Speaker: Mr. Mike Janay
12:00 p.m.	Luncheon

CONFERENCE ADJOURNS UPON COMPLETION OF LUNCH

11th Annual Expeditionary Warfare Conference Dates: October 23 - 26, 2006



10th Annual EWC Golf Tournament

Sponsored by Northrop Grumman Ship Systems

Monday, October 24, 2005 at 8:00am
Marriott Bay Point Resort Nicklaus Course



The format is a Captain's Choice (scramble) with a Shotgun start at 8:00 a.m. You may enter individually and be paired up with other NDIA and/or local golfers, or make up your own team. A box lunch is provided, and awards and prizes will be presented at the clubhouse afterwards. Please fill in all blanks on this registration form (One form per person, please). Payment must be made in advance, either by check (made out to NDIA) or by credit card, if registering for the conference. Cancellations after October 11, 2005 will not receive a refund. Last minute registration will be available at the course (payment must be cash or check) as we always have a few no-shows and we will place you where we can.

Additional Sponsors are welcome for:
Hole Sponsorship
Logo Giveaways
To sponsor, contact Mike Plitman at: (850) 233-1050

Start - 8:00 a.m.
Awards/Prizes - 2:00 p.m.
$95.00 per person

Please fax this form with your registration to, Simone L. Baldwin at 703-522-4656:

Name _____

Company _____

Address _____

City _____ State: _____ Zip+4 _____

Phone: _____ Fax: _____

email: _____



Payment: _____

Please Circle: Check (payable to NDIA)
Diners Club, VISA, MC, AMEX
Government PO/Training Form #



Names of three (3) players in your foursome:

1. _____ handicap/avg. score _____
2. _____ handicap/avg. score _____
3. _____ handicap/avg. score _____

GOLF REGISTRATION

EVENT REGISTRATION

For your spouse or guest enjoyment, we invite them to:

Spouse Welcoming Tea
Monday, October 24, 2005
3:00 P.M.

SPOUSE & GUEST REGISTRATION FORM
Please fax this form with your registration to, Simone L. Baldwin at 703-522-4656:

Guest's Name_____

Address_____

City_____ State:_____ Zip+4_____

Phone:_____ Fax:_____

Payment: _____

Please Circle: Check (payable to NDIA)
Diners Club, VISA, MC, AMEX
Government PO/Training Form #

I will attend the following events:

- ❑ Spouse Welcoming Tea, Monday, October 24, 2005 - Comlimentary
- ❑ Reception & Dinner, Monday, October 24, 2005 - $40.00
- ❑ NDIA/MAC Reception, Tuesday October 25, 2005 - $20.00
- ❑ Pig Roast, Wednesday, October 26, 2005 - $35.00

Upcoming NDIA Events

Tactical Wheeled Vehicles	Monterey, CA	Feb 5 - 7
Munitions Executive Summit	Phoenix, AZ	Feb 7 -9
22nd Annual Test & Evaluation Forum	Jacksonville, FL	Mar 3 - 9
SO/LIC Symposium & Exhibition *	Crystal City, VA	Mar 13 - 15
Guns & Missiles Systems*	Sacramento, CA	Mar 27 - 30
7th Annual Science & Engineering Tech Conference *	Orlando, FL	Apr 18 - 20
22nd Small Arms Symposium *	Albuquerque, NM	May 17 - 19

* (Includes an Exhibition)

Conference Registration:

Payment must be made at the time of registration. Please complete the attached form and mail your fee, payable to: *The National Defense Industrial Association (NDIA), Event #6700, 2111 Wilson Boulevard, Suite 400, Arlington, VA 22201-3061.* Faxed registrations are also acceptable. Please include your credit card number (Diners Club, Visa, MasterCard, American Express, but not Discover Card), name, card expiration date, and signature on the registration form and fax to NDIA at (703) 522-1885. Registrations may not be done over the phone.

The registration fees for the 10th Annual Expeditionary Warfare Conference are as follows:

	Early (Before 09/19/05)	Regular	Late (On/After 10/11/05)
Industry NDIA Member	$500	$550	$650
Industry Non-NDIA Member**	$545	$595	$695
U.S. Gov't/Academia/Allied Gov't	$450	$500	$600

** The Non-Member fees include a one year individual membership to NDIA.

The conference fee includes attendance at all sessions, coffee breaks, lunches, (2) receptions, one (1) dinner access, one (1) pig roast access, and administrative costs. Extra Monday night Dinner tickets are an additional $40.00, and Pig Roast tickets are an additional $35.00. *Pig Roast badges will be issued at the conference, and must be worn to attend the NSWC Open House Reception Wednesday night.* The Government/Allied Gov/Academia Fees apply Only to Active Military and Civil Service personnel with government identification cards and employees of academic institutions .

On-Line Registration

Register for this conference at http://www.ndia.org/interview/register/NDIA?~Brochure~6700. You will receive an e-mailed confirmation after you use the CONFIRM button on the web page. You can also put yourself on a mailing list for future brochures at the same site. When registering on-line (through our webpage), please review your information and then "*submit* " and "*confirm*" your entry. On-line registration will end at close of business, eastern standard time, on Monday, October 10, 2005. Please register on-site after that date.

In Person On-Site Registration (space permitting)

On-site registration will be on a space available basis. There is a possibility that registration may be closed early due to capacity limitations; we strongly suggest that you register early for this unique event. Please check our web site: http://register.ndia.org/interview/register.ndia?~brochure~6700 before making travel arrangements to ensure that on-site registration is available, or call our Association Service Center at (703) 522-1820. We sometimes sell out and must close registration.

Refunds

Registrants who cannot attend this conference must provide a written notification to NDIA before September 19, 2005 to avoid a cancellation fee. After this date, there will be a $150 cancellation fee. On/After October 11, 2005, no refunds will be given for any cancellations. Refunds will be processed after the conclusion of the conference. The policy applies to both on-line registrations and faxed registrations. *Substitutions are welcome.*

Attendance Roster

An attendance roster will be distributed at the conference. Your registration form and payment must be received by 5pm EST on October 10, 2005 to be included on the roster. An updated roster will NOT be printed after the conference.

Hotel Information

A block of rooms has been reserved at the Marriott Bay Point Resort Village Golf & Yacht Club, 4200 Marriott Drive, Panama City Beach, FL 32408. Call (800) 874-7105 or (850) 236-6000 to make reservations. The room rates is $119 single/double for industry attendees and prevailing 2005 government per diem rate for government attendees. *The per diem rate is available ONLY to active duty military or civilian government employees. Identification will be required at check-in; a retired military ID is NOT acceptable. Reservations must be made by Tuesday, September 20, 2005.* Rooms may be sold out before Tuesday, September 20, 2005. After that date, reservations will be accepted on a space available basis. Attendees are responsible for making their own hotel reservations. Be sure to mention that you are with the 10th Annual NDIA Expeditionary Warfare Conference in order to receive the group rate.

Overflow Hotels

The following hotels will serve as our overflow hotels. Edgewater Beach Resort, 11212 Front Beach Road, Panama City, FL 32407. Reservation: (800) 874-8686, Fax: (850) 233-7549. The Holiday Inn-Sun Spree Resort, 11127 Front Beach Road, Panama City, FL 32407. Hotel phone (850) 234-1111, Fax:(850) 235-1907, Reservations: (800) 633-0266. The Hampton Inn, 2909 Thomas Drive, Panama City, FL 32408. Reservations, (850) 236-8988, Fax: (850) 236-1157

GENERAL INFORMATION

GENERAL INFORMATION

"The Department of Defense finds this event meets the minimum regulatory standards for attendance by DoD employees. This finding does not constitute a blanket approval or endorsement for attendance. Individual DoD component commands or organizations are responsible for approving attendance of its DoD employees based on mission requirements and DoD regulations."

www.defensejobs.com
The Defense Industry's leading employment website; find a job, post a job listing, post a resume, and search resumes. For more information please contact info@defensejobs.com or 703.247.9461. Please visit www.defensejobs.com

National Defense Magazine

Increase your company's exposure at this conference by advertising in National Defense! National Defense will be distributed to the attendees of this conference. For more information contact, Dino Pignotti at Phone 703-247-2541 Fax 703-522-4602.

Inquiries

For questions regarding attendee participation at this conference contact Simone L. Baldwin at (703) 247-2596 or via e-mail sbaldwin@ndia.org



Continuous Learning Activity

Attending/Speaking/Presenting at this professional Symposium & Exhibition may allow a DoD AT&LWF member's supervisor to award points in accordance with the OUSD AT&L memorandum dated 18 Sep 2002. However, the supervisor needs to determine that the individual learned something meaningful from the experience.

10th Annual Expeditionary Warfare Conference
Marriott Bay Point Resort Village Golf & Yacht Club
• October 24 - 27, 2005 • Event #6700

National Defense Industrial Association
2111 Wilson Boulevard, Suite 400
Arlington, VA 22201-3061
(703) 522-1820 • (703) 522-1885 fax
www.ndia.org

3 Ways to sign up:
1. Online with a credit card at www.ndia.org
2. By fax with a credit card — Fax: 703-522-4656
3. By mail with a check or credit card

☐ Address change needed

NDIA Master ID/Membership # _____ Social Security # _____
(if known—hint: on mailing label above your name) *(last 4 digits – optional)*

Prefix _____
(e.g. RADM, COL, Mr., Ms., Dr., etc.)

Name First _____ MI _____ Last _____

Military Affiliation _____ Nickname _____
(e.g. USMC, USA (Ret.) etc.) *(for Meeting Badges)*

Title _____

Organization _____

Street Address _____

Address *(Suite, PO Box, Mail Stop, Building, etc.)* _____

City _____ State _____ Zip _____ Country _____

Phone _____ ext. _____ Fax _____

E-Mail _____

Signature* _____ Date _____

Preferred way to receive information

Conference information ☐ address above ☐ Alternate *(print address below)* ☐ E-mail

Subscriptions ☐ address above ☐ Alternate *(print address below)*

Alternate Street Address _____

Alternate Address *(Suite, PO Box, Mail Stop, Building, etc.)* _____

City _____ State _____ Zip _____ Country _____

** By your signature above you consent to receive communications sent by or on behalf of NDIA, its Chapters, Divisions and affiliates (NTSA, AFEI, PSA, NCWG, WID) via regular mail, e-mail, telephone, or fax. NDIA, its Chapters, Divisions and affiliates do not sell data to vendors or other companies.*

By completing the following, you help us understand who is attending our meetings.

Primary Occupational Classification. *Check ONE.*
- ☐ A. Defense Business/Industry
- ☐ B. R&D/Laboratories
- ☐ C. Army
- ☐ D. Navy
- ☐ E. Air Force
- ☐ F. Marine Corps
- ☐ G. Coast Guard
- ☐ H. DOD/MOD Civilian
- ☐ I. Gov't Civilian (Non-DOD/MOD)
- ☐ J. Trade/Professional Assn.
- ☐ K. Educator/Academia
- ☐ L. Professional Services
- ☐ M. Non-Defense Business
- ☐ N. Other _____

Current Job/Title/Position. *Check ONE.*
- ☐ A. Senior Executive
- ☐ B. Executive
- ☐ C. Manager
- ☐ D. Engineer/Scientist
- ☐ E. Professor/Instructor/Librarian
- ☐ F. Ambassador/Attaché
- ☐ G. Legislator/Legislative Aide
- ☐ H. General/Admiral
- ☐ I. Colonel/Navy Captain
- ☐ J. Lieutenant Colonel/Commander/Major/Lieutenant Commander
- ☐ K. Captain/Lieutenant/Ensign
- ☐ L. Enlisted Military
- ☐ O. Other _____

Year of birth _____
(Optional)

Registration Fees

	Early *before 09/19/05*	Regular	Late *on/after 10/11/05*
Industry NDIA member	❑ $500	❑ $550	❑ $650
Industry non-NDIA member[2]	❑ $545	❑ $595	❑ $695
Government/Academia[1]	❑ $450	❑ $500	❑ $600

❑ I'm attending the NDIA/MAC Reception (price included in conference fee)
❑ I'm attending the Pig Roast (price included in conference fee)

❑ U.S. Citizen
❑ Other: (Provide Country) _____

A $150 cancellation fee will be applied to cancellations received between September 19 - October 10, 2005. NO REFUNDS FOR CANCELLATIONS RECEIVED ON/AFTER October 11, 2005.

Substitutions are welcome! All cancellations and substitutions must be done in writing and submitted to Simone Baldwin, sbaldwin@ndia.org. The cancellation policy applies to all attendees regardless of their method of registration or reason for cancellation.

[1] Includes a free three-year NDIA membership and *National Defense* magazine for Military and Government employees (first time members only).
❑ No do not sign me up for the membership.

[2] Registration fees for non-NDIA members include a one-year non-refundable NDIA membership—$15.00 will be applied for your subscription to *National Defense* magazine.

Payment Options
- ☐ Check *(payable to NDIA)*
- ☐ Cash
- ☐ Government PO/Training Form # _____
- ☐ VISA
- ☐ MasterCard
- ☐ American Express
- ☐ Diners Club

If paying by credit card, you may return by fax to (703) 522-4656.

Credit Card Number ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Exp. date ☐☐/☐☐

Signature _____ Date _____

Questions? Contact Meeting Planner, Ms. Simone L. Baldwin
(703) 247-2596 email: sbaldwin@ndia.org

Mail to: NDIA, Event #6700
2111 Wilson Boulevard, Suite 400
Arlington, VA 22201

Fax to: (703) 522-4656

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Marriott Bay Point Resort Village
Golf & Yacht Club

Panama City, FL



Please visit our website:
http:// www.ndia.org



SERVING OUR NATION WITH ASSURED LOGISTICS

Sustaining the Sea Base

26 October 2005

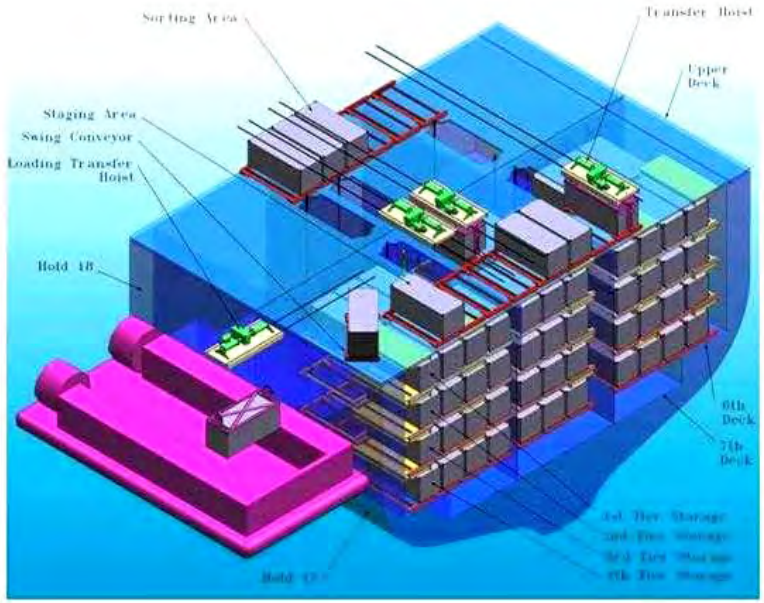
MAERSK LINE, LIMITED

Current Commercial Resupply Network

- Optimized network of rail, truck, and ships
- Designed to move large volumes over a fixed route
- Relatively inflexible

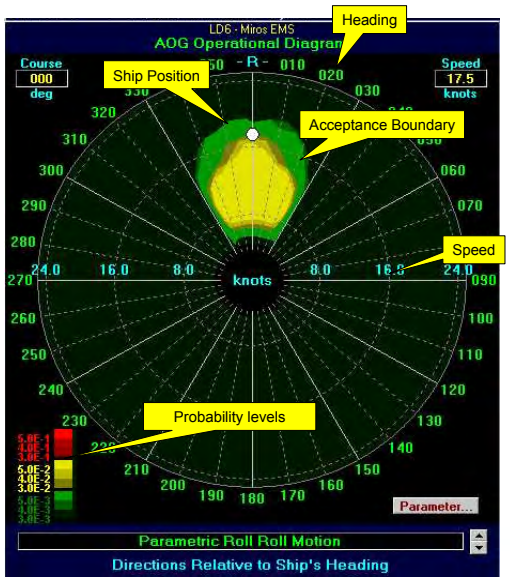
Logistical Challenges to Support the Sea Base

- Adapting the present liner vessel network to provide focused delivery of specific material for a specific purpose
  - Selective Retrieval & Discharge
    - In place on sea base, will likely not be available on commercial liner vessels
  - Cooperation between commercial and military planners is required



Physical Challenges to Support the Sea Base

- Mooring a Ship into a Sea Base
  - Skin to Skin
  - Fendering and Mooring
  - Relative Motion between Vessels





Physical Challenges to Support the Sea Base



Moored to a Liner Vessel

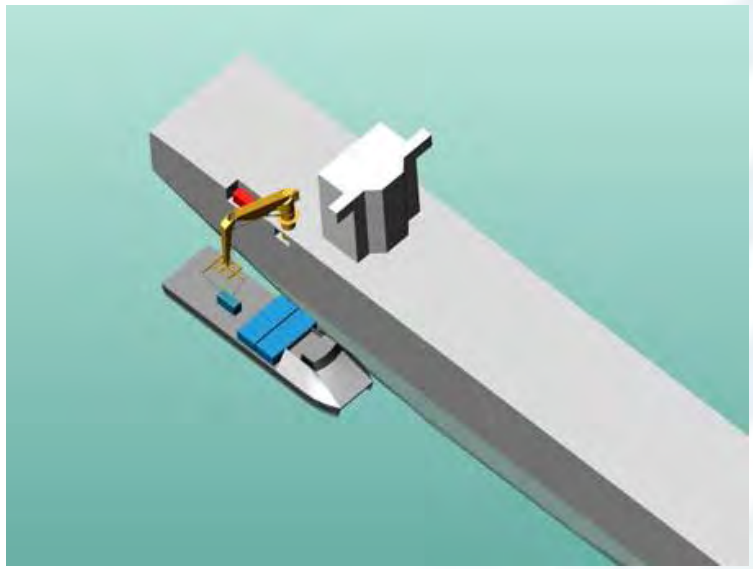


Moored to an HSV

Physical Challenges to Support the Sea Base

- Discharging cargo to the sea base
  - Cargo handling equipment
    - Motion compensation
      - 6 degrees of freedom
    - Environmental sensing and predictive control





Meeting the Logistical Challenges

- Full visibility throughout the delivery process
  - Total Asset Visibility
  - RFID
  - Just in Time Delivery

  ➢ Requirement also exists with commercial customers

Total Asset Visibility

"... it is perfectly useless to get a thousand tons of gasoline when you need five hundred tons of gasoline, two hundred tons of ammunition, and three hundred tons of bridging material."

Major General George S. Patton, War as I Knew It, 1947, Houghton Mifflin Company, pp. 144-145.



Total Asset Visibility	Detailed visibility to ensure that needed supplies reach the warfighter
Mission-specific logistics design	Customized logistics services focus on in-theater logistics efficiency at any mission stage from pre-engagement design to planning for disengagement
Transportation Management	Global distribution capabilities enable the right supplies delivered to the right hands at the right time for streamlined in-theater logistics

In Conclusion…

Research and development as well as extensive testing has already been done and continues to be performed to meet non-military customers' requirements.

The military must continue to tap into the sophistication of this commercial knowledge and partner with industry in the advancement of sea basing technology and logistics process development.

Seabasing

A National Imperative For the Joint Battlespace

Brigadier General Thomas L. Conant, U.S. Marine Corps
Director, Capabilities Development Directorate
Marine Corps Combat Development Command
Quantico, Virginia

Seabasing: Why do we care?

- The Marine Corps is committed to warfighting excellence; to that end, our *number one focus* is to accelerate the realization of Seabasing as a Naval, Joint, and National capability.

- Seabasing affords the Combatant Commanders *options* where *access* is increasingly a central concern – paucity of ports and waning host-nation support.

- Seabasing is *not about platforms* – it is about breaking down the traditional barrier between land and sea power – to *use the oceans and the seas as maneuver space*.

"Our forces in the next century must be agile, lethal, readily deployable... We must be able to project our power over long distances, in days or weeks, rather than months" ***President G.W. Bush***

Seabasing Components



Carrier Strike Group

Expeditionary Strike Group





Maritime Prepositioning Group

Sea Base

1. Carrier Strike Group (CSG)
2. Expeditionary Strike Group (ESG)
3. Maritime Prepositioning Group (MPG)
4. Combat Logistics Force (CLF)
5. Connectors: High Speed Ship (HSS), High Speed Vessel (HSV), Assault Connectors (LCAC, EFV)
6. Sister Service and Coalition Force Ships

Connectors





Combat Logistics Force Ships

Sister Service and Coalition Force Ships



MPF(F) Required Capabilities And Squadron Composition

- ✓ Preposition the MEB (1 Air and 2 Surface Battalions [selective offload])
- ✓ Close a MEB in 10-14 days
- ✓ At Sea Arrival and Assembly in 24-72 Hours
- ✓ Employ one Surface Battalion and one Vertical Battalion in 8-10 hours
- ✓ Provide accommodations and aircraft/vehicle maintenance capability (O level/selected I level) for a MEB
- ✓ Sustain the forces ashore from the Sea Base
- ✓ Provide Level II (resuscitative surgery) medical support
- ✓ Accommodate and operate organic surface connectors
- ✓ Conduct external operations in Sea State 3 threshold/Sea State 4 objective
- ✓ Provide MEB C2

2x LHA



1x LHD



3x T-AKR

Artist Rendition/Notional Configuration



3x MLP

Artist Rendition/Notional Configuration
FLO/FLO Technology focused

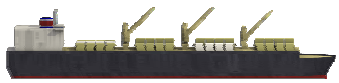


3x T-AKE

Artist Rendition/Notional Configuration



2x Legacy



Seabasing

The Joint Force Multiplier
Across the Full Range of Military Capabilities









Questions ?

Headquarters U.S. Air Force

Integrity - Service - Excellence

Force Multipliers for the Joint Battlespace:
Issues, Challenges and Opportunities



This briefing is UNCLASSIFIED

Brig Gen "Andy" Dichter
Deputy Director
AF Operational Capability Requirements (AF/XOR)

A/O: 20 Oct 05

Source: AF/XOR-J

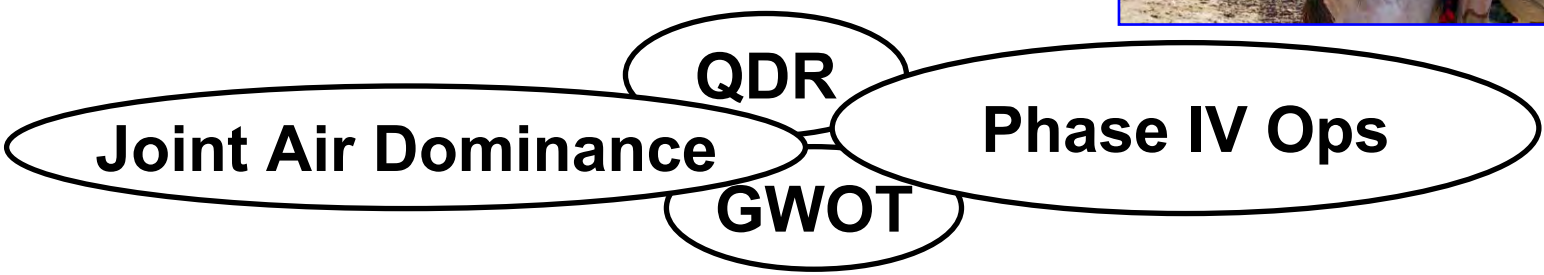
Introduction
Context
Issues & Challenges
Opportunities

Introduction



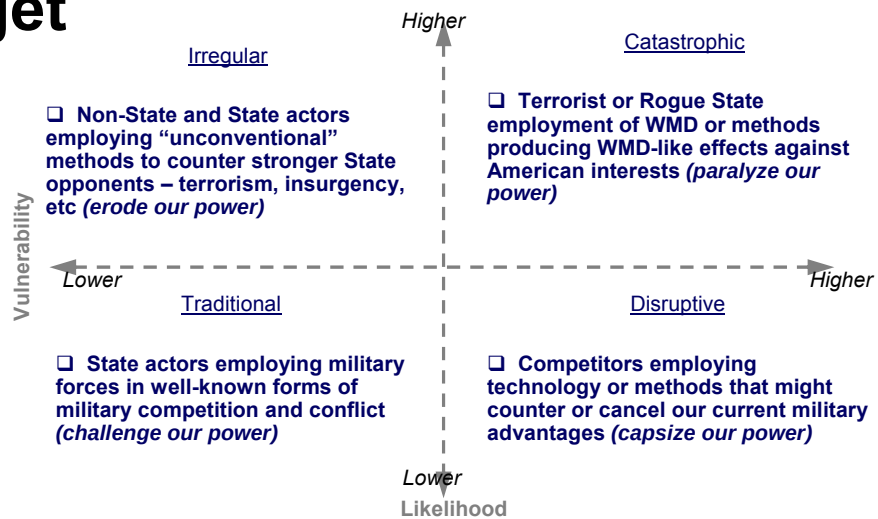






Context from An Airman's Perspective

- **Nation at War**
- **Transformation to Capabilities-Based Planning**
- **Demands on the Budget**
- **QDR as a Backdrop**



- **Air Dominance**

  Overmatch, Excess or Balanced?

Department's End-to-End Process

DAB Capability Area Reviews (CARs)

- Strategic Planning Guidance
- Defense Planning Scenarios
- Family of Concepts
- Transformation

Capabilities Based Assessment

- Capabilities
- Tasks
- Attributes
- Metrics
- Gaps
- Shortfalls
- Redundancies
- Risk areas
- Non-materiel solutions
- Materiel solutions
- S+T initiatives
- Experimentation

- Refined concept
- Analysis of Alternatives
- Technology Development Strategy
- System Engineering

- Affordable military-useful increment
- Technology demonstrated
- Initial KPPs

- Revise KPPs
- Detailed design
- System integration
- DT&E / IOT&E

- LRIP
- IOT&E

activity

Select a Joint Integrating Concept | Develop Concept | Functional Area Analysis | *Functional Needs Analysis | JCD | *Functional Solutions Analysis | ICD | Concept Decision | Analysis of Alternatives | MS "A" | Technology Development | CDD | MS "B" | System Development | CPD | MS "C" | Production

Capability Based Assessment

OSD/JCS | COCOM | FCB | JCB | JROC

OSD (AT&L)-led Capability Roadmaps

Evolutionary or Spiral Development

Services

oversight

SecDef | Joint Chiefs of Staff & Joint Requirements Oversight Council | Joint Staff / OSD | OSD (AT&L, PA&E), Services and OSD (DOT&E) -- Joint Staff (JROC)

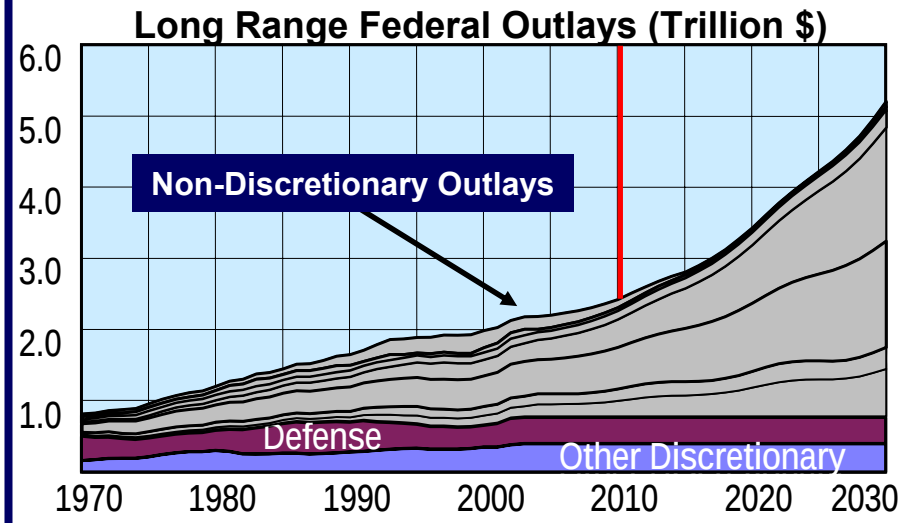
Policy | Capabilities Definition | Concept Refinement | Acquisition and Test

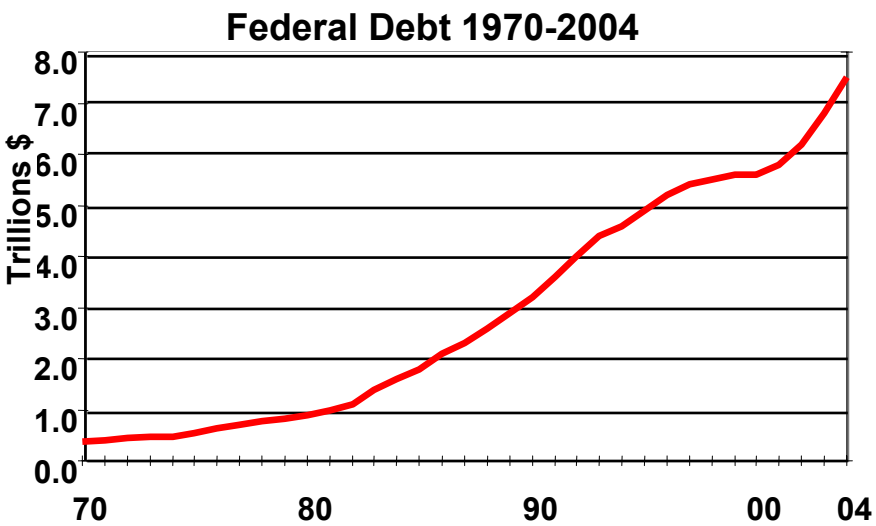


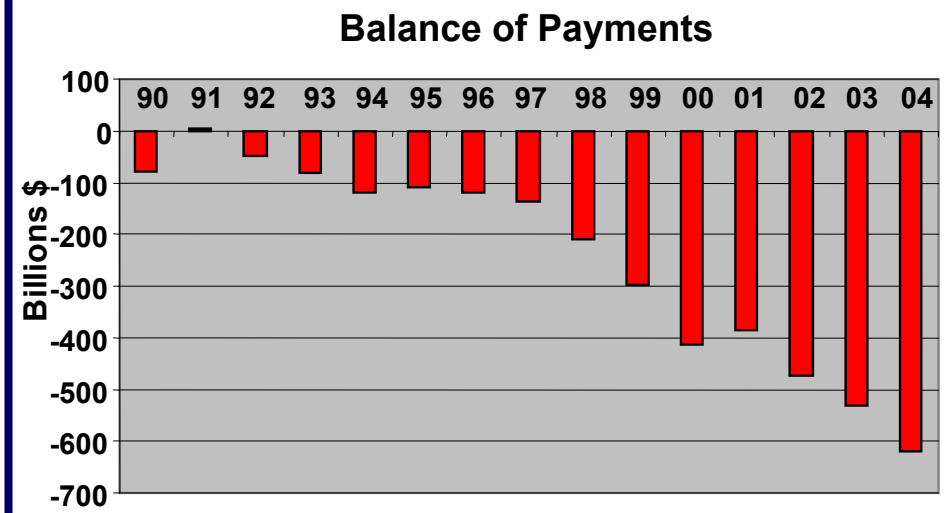
External Forces May Drive DoD's Budget South

Powerful Political-Economic Forces Are in Play

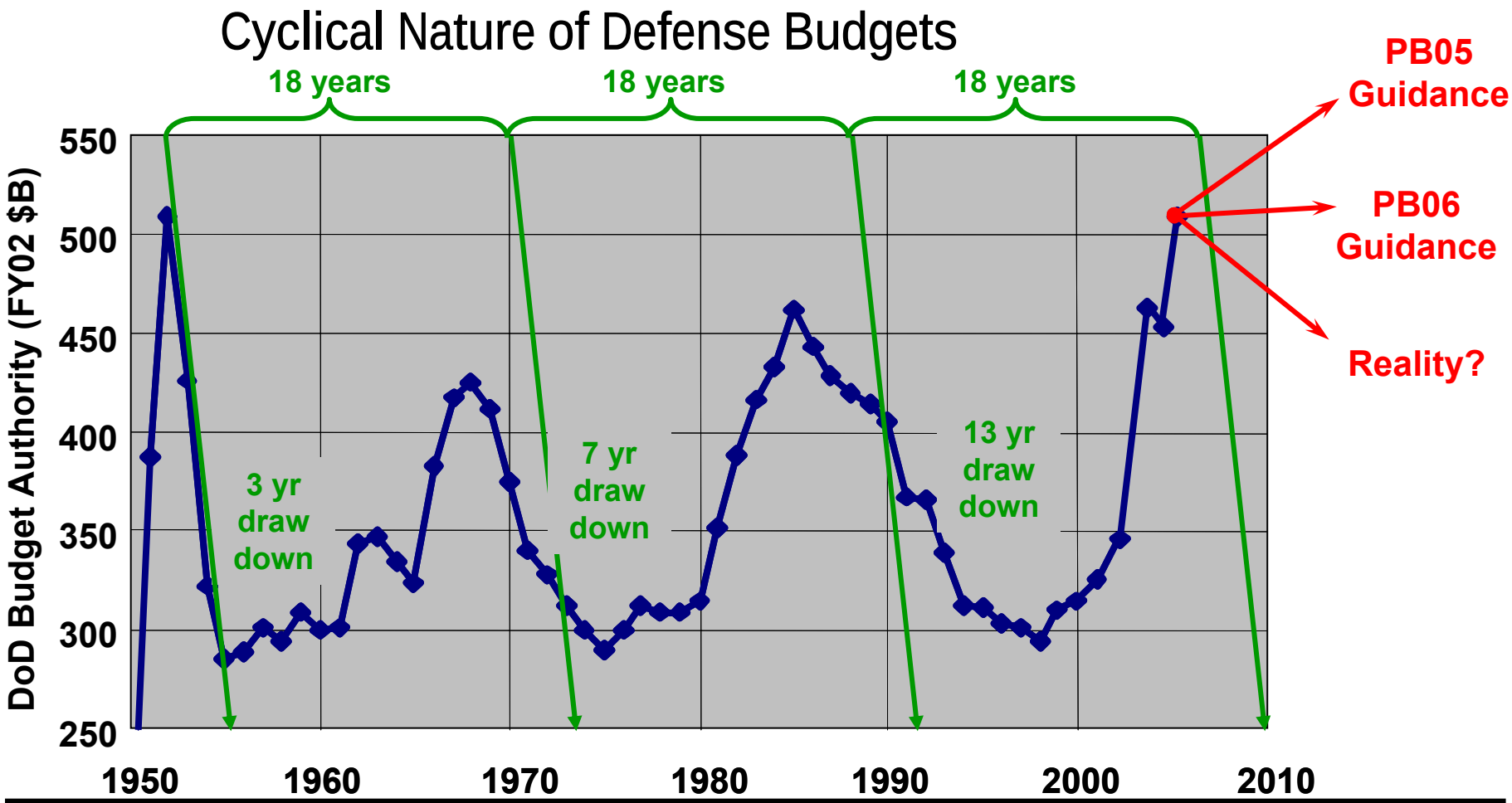
- Boomer Retirements
- Social Security Reform
- Tax Reform
- Growing Deficit
- Imbalance of Payments
- $60B per year for Global War on Terror





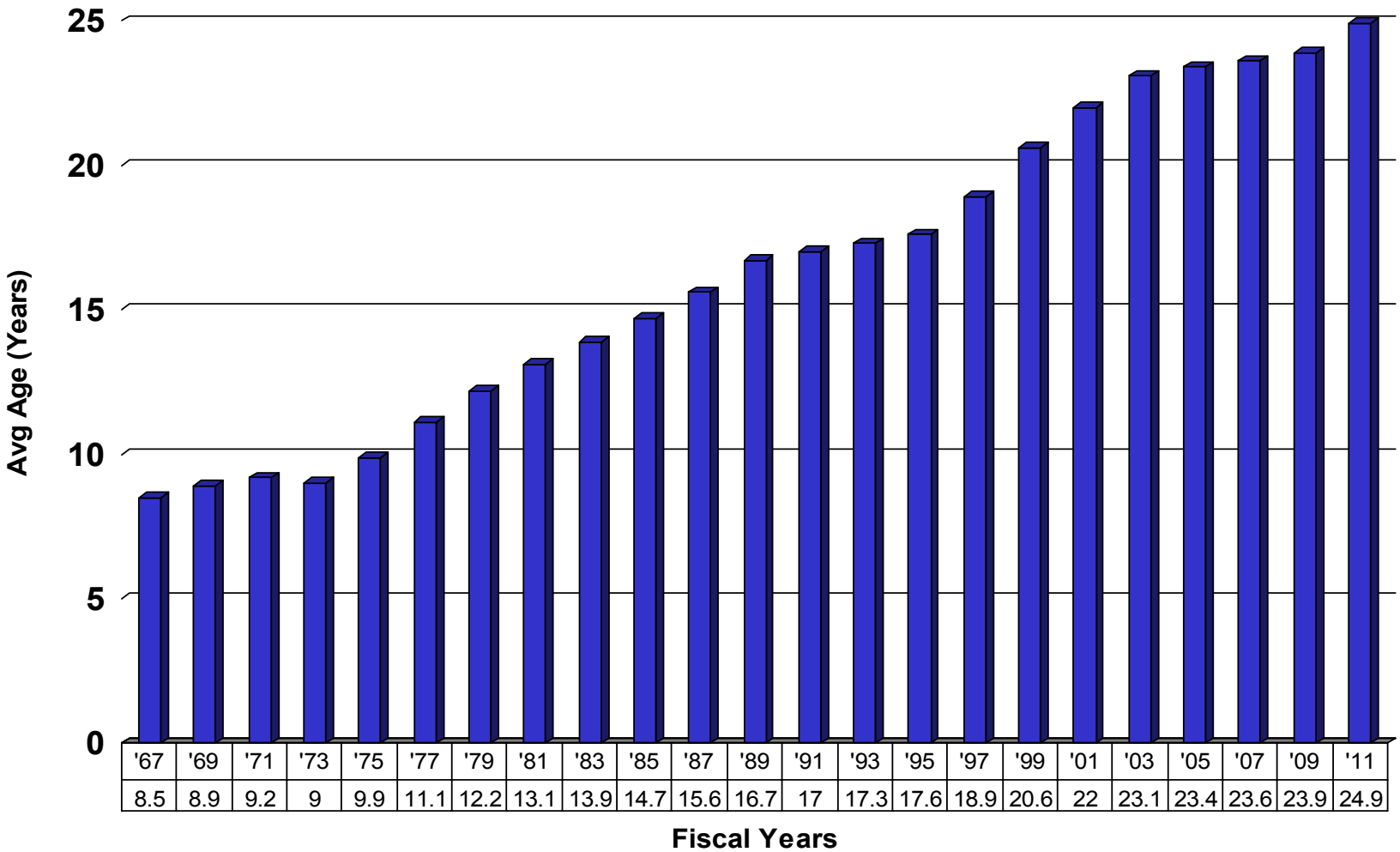


Where's the Defense Budget Headed Next?

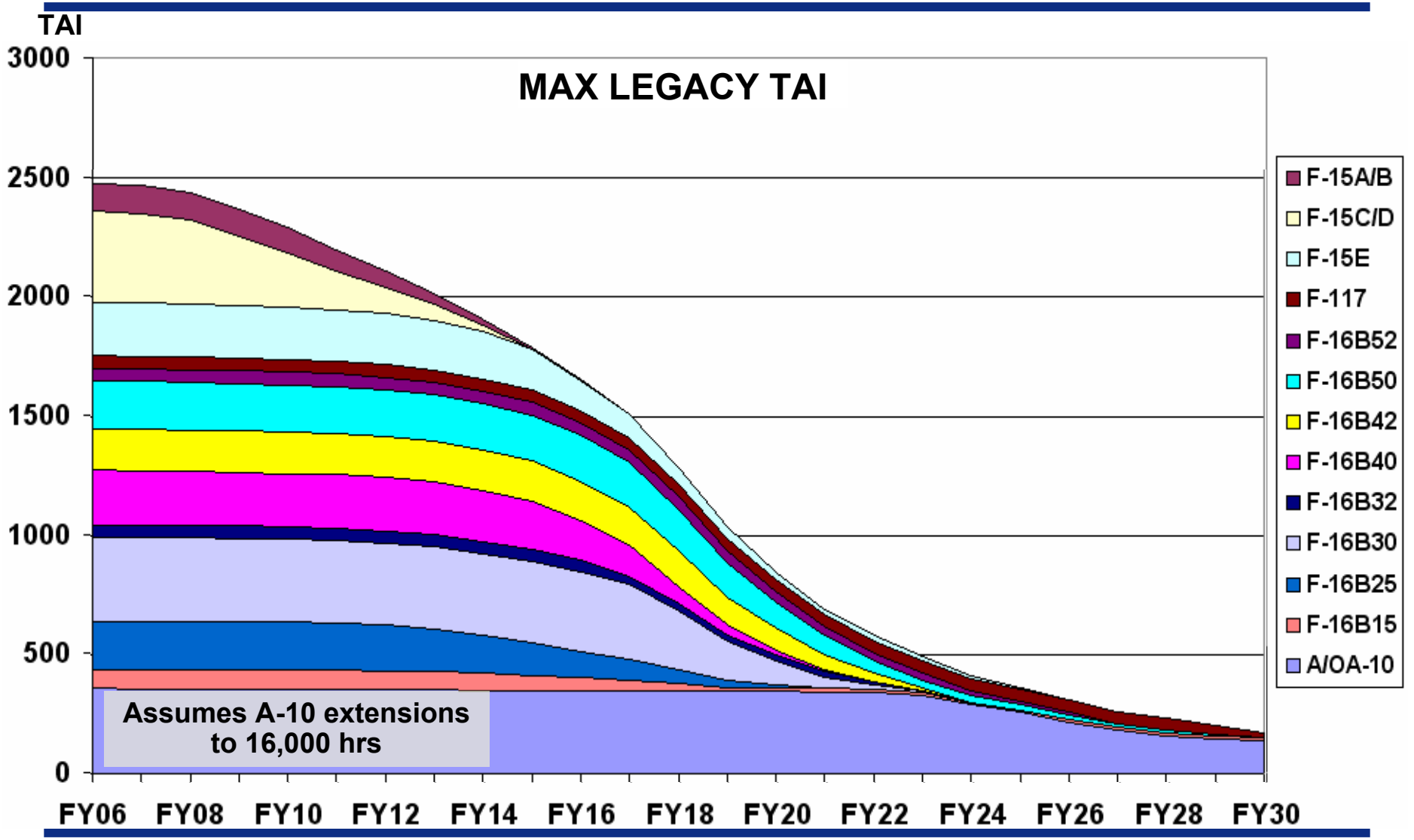


Draw-downs occur approximately every 18 years. Is now the time?

Oldest Air & Space Force in US History

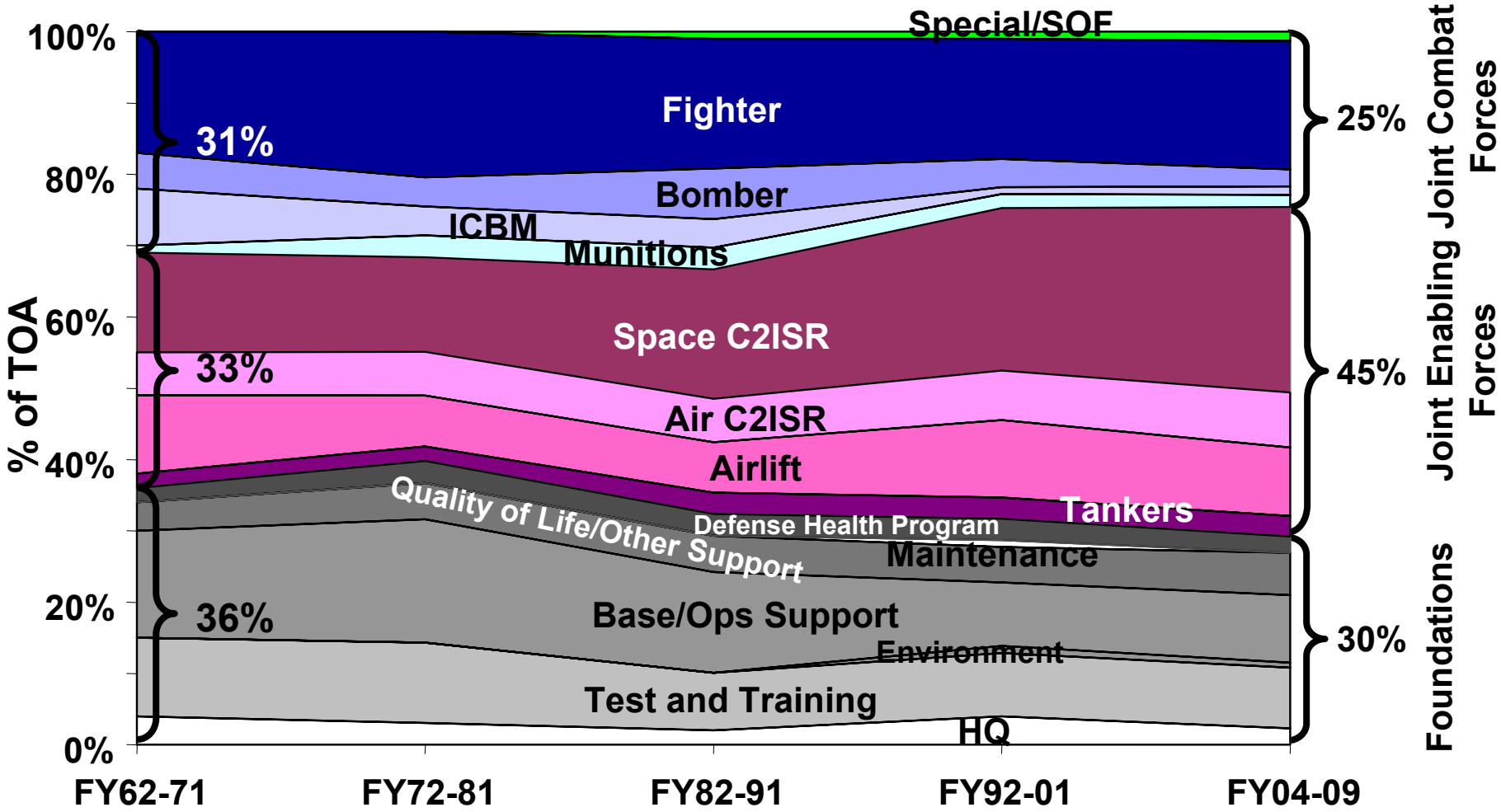


What the AF Has Will Not Last



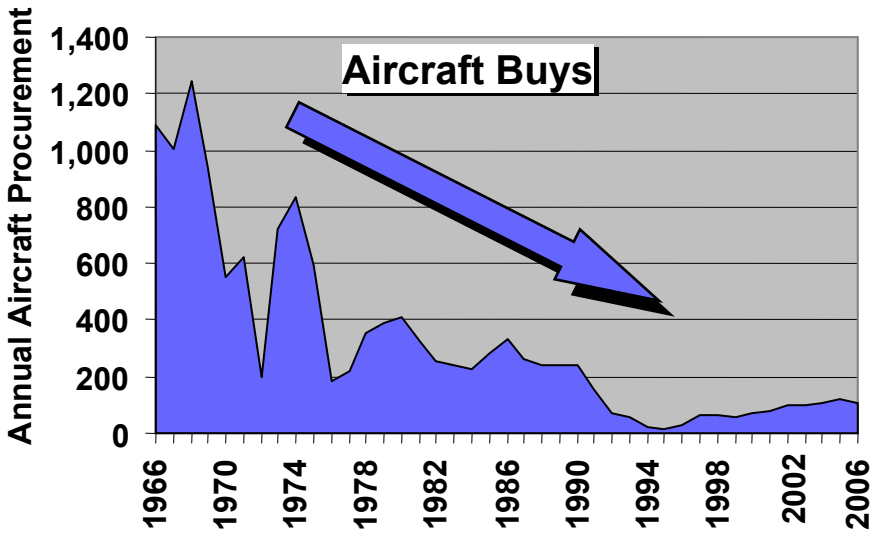


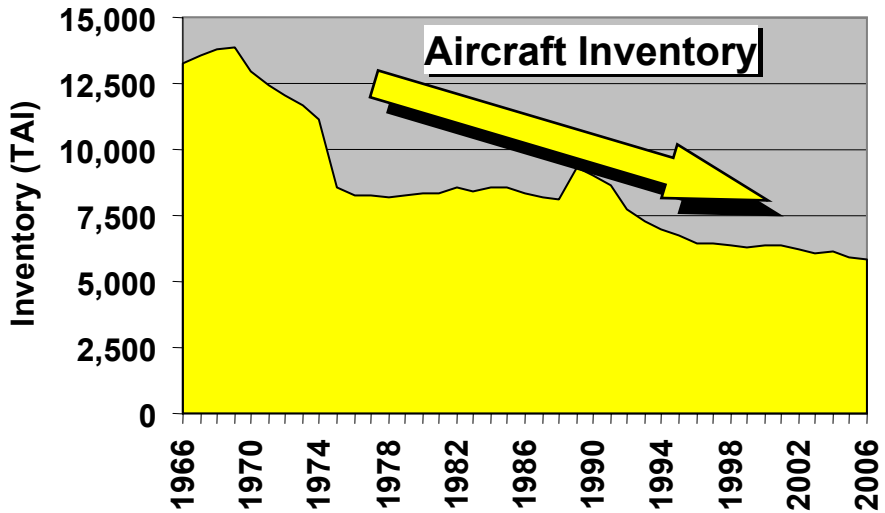
AF Investment: Enable the Joint Team

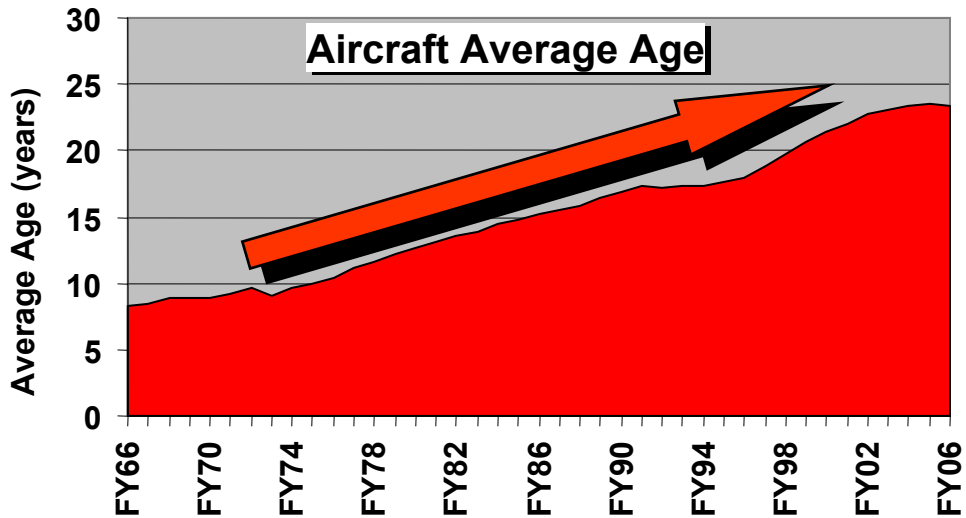


Reductions in joint combat forces and foundations paid for increased emphasis on joint enabling forces

Where We've Been:





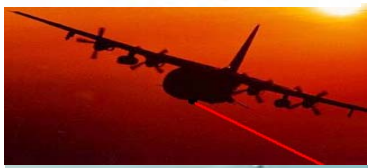


USAF Buys & Inventory Way DOWN - Average Age Way UP

Transforming the Force













Innovative Concepts
- CONOPS/CRRA
- Agile Acquisition

Future Total Force
- Integrating Active/Guard/ Reserve (JSTARS, Predator Nellis, Richmond Wing)

Technology Application
- Stealth - Directed Energy
- Precision Munitions - GPS

Network Centric
- Air Operations Center
- Link 16

Mixing Old with New
- Close Air Support w/heavy bombers - Special Ops

Recapitalize the Force
- Aircraft
- Real property

Modernize the Force
- F/A-22, C-17, KC-X
- ISR, E-10A/B/C

AF 2025 Transformed Future Force



- Global Military Leverage
  - Control Air and Space
  - Exploit the Medium
- Joint Enabling
- Smaller/More Capable

Transforming Organizations: *Changing How You Fight*

SAC/MAC/TAC Reorganized Into ACC & AMC To Meet New Strategic Environment

1998: Expeditionary Air Force (EAF) concept unveiled

TODAY: Future Total Force (FTF)

"Tactical" and "Strategic" define effects, not platforms













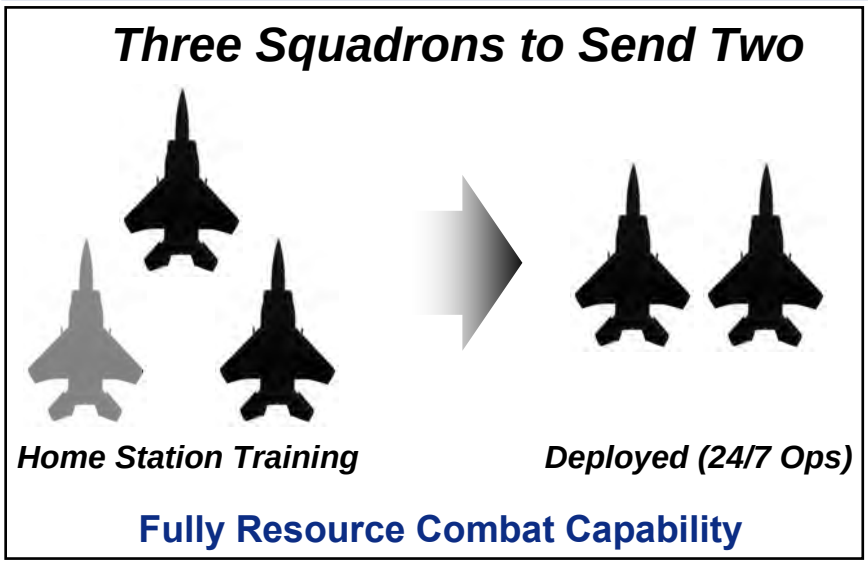


1980 **1990** **2000**

1992 Functional Organization Shift

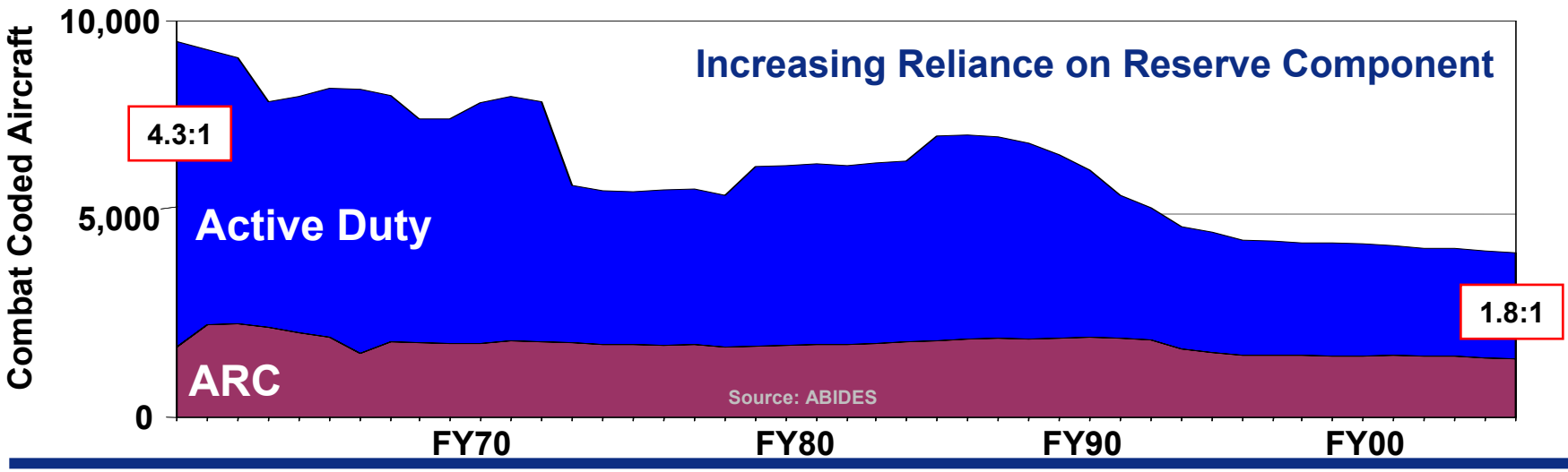
1998 Expeditionary Structure Shift

Operational Efficiencies: Through Transformation

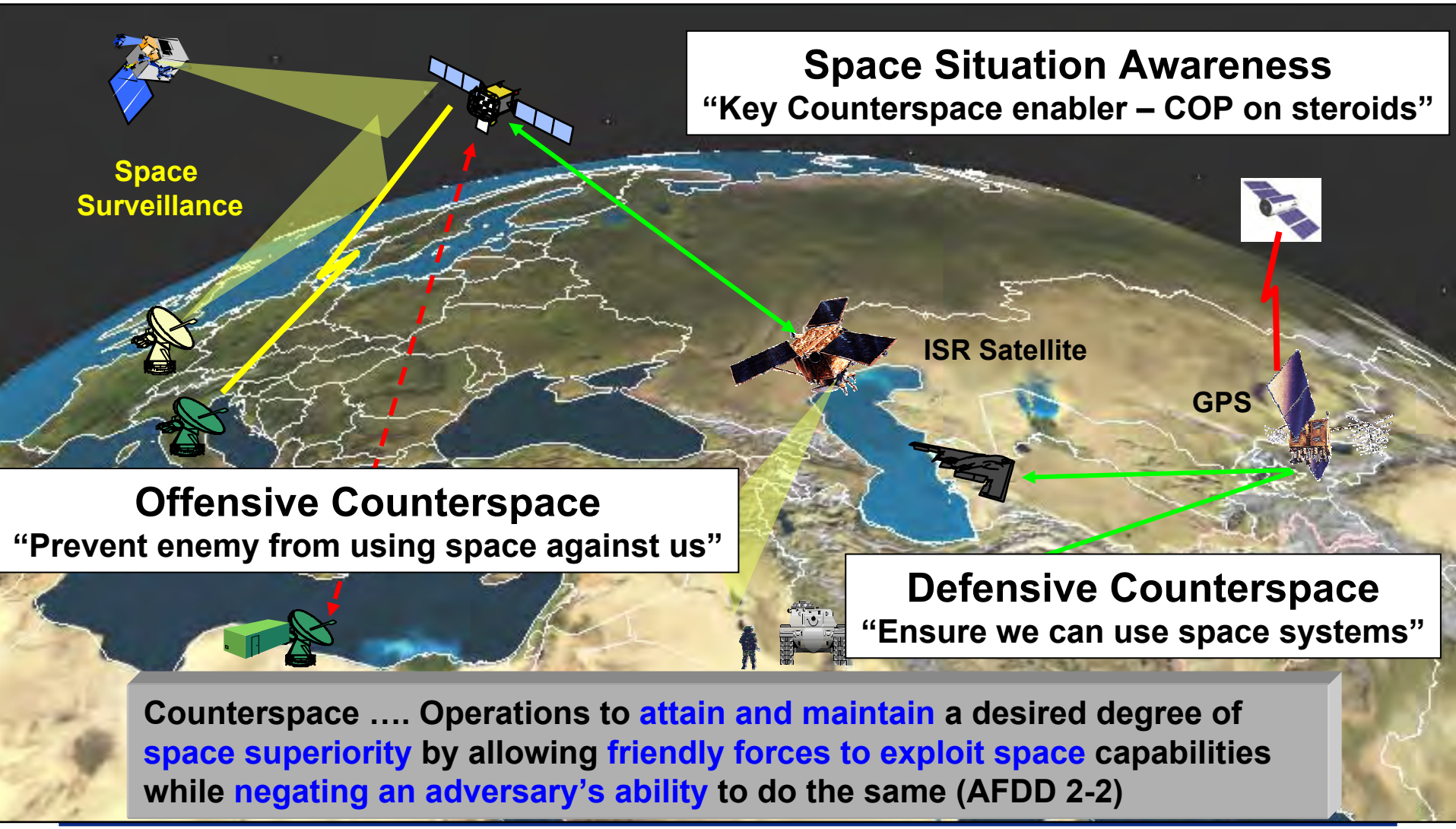


Solution:

- Retire least capable, most expensive aircraft
- Retain most capable and experienced personnel
- Stand-up CAF Associate Unit organizations



Space Control & Space Superiority



Counterspace …. Operations to **attain and maintain** a desired degree of **space superiority** by allowing **friendly forces to exploit space** capabilities while **negating an adversary's ability** to do the same (AFDD 2-2)

Net Centric Warfare -- 2005

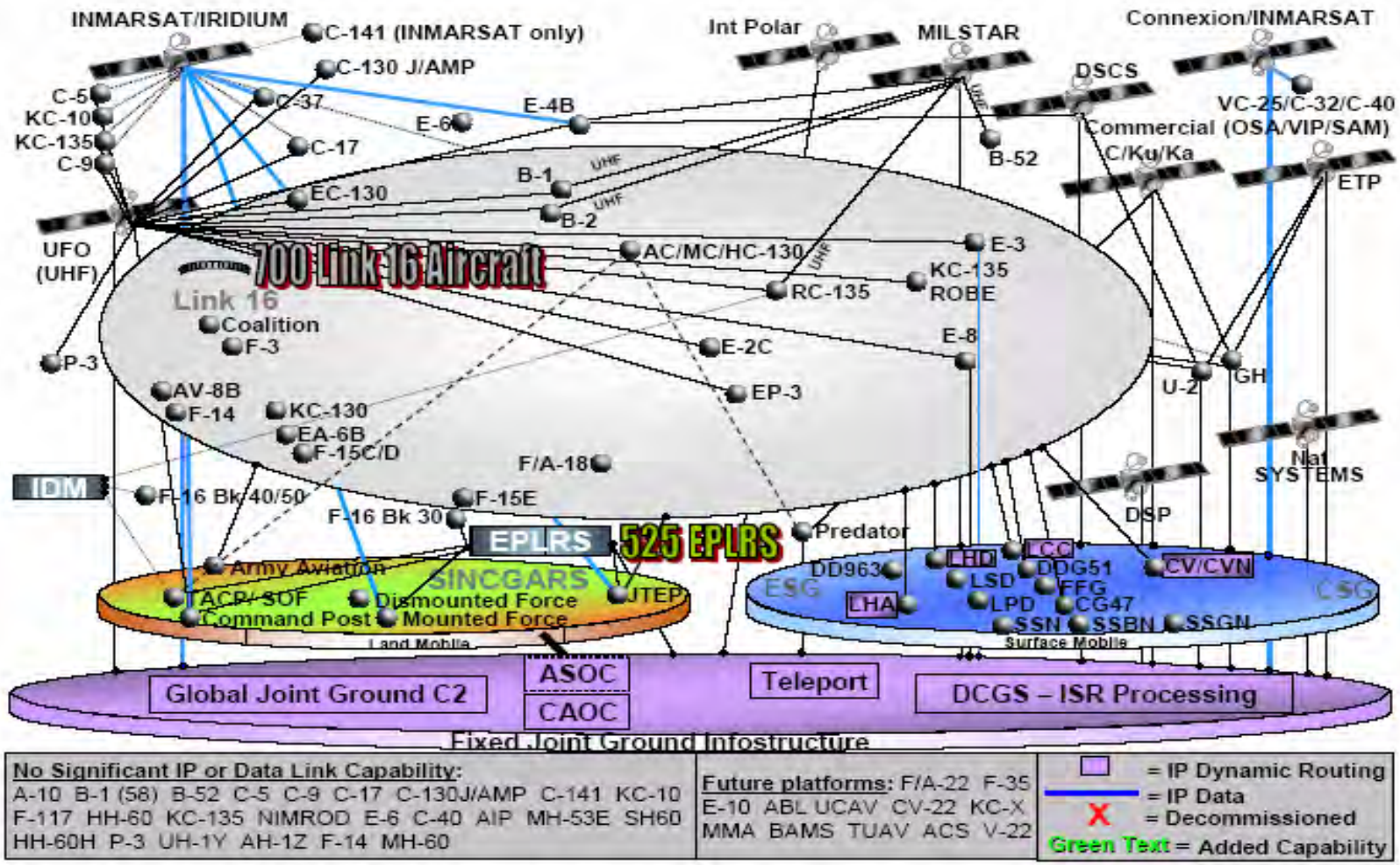


Figure 5.3—Air Force FY 2005 Communications Network Architecture



Net Centric Warfare -- 2013

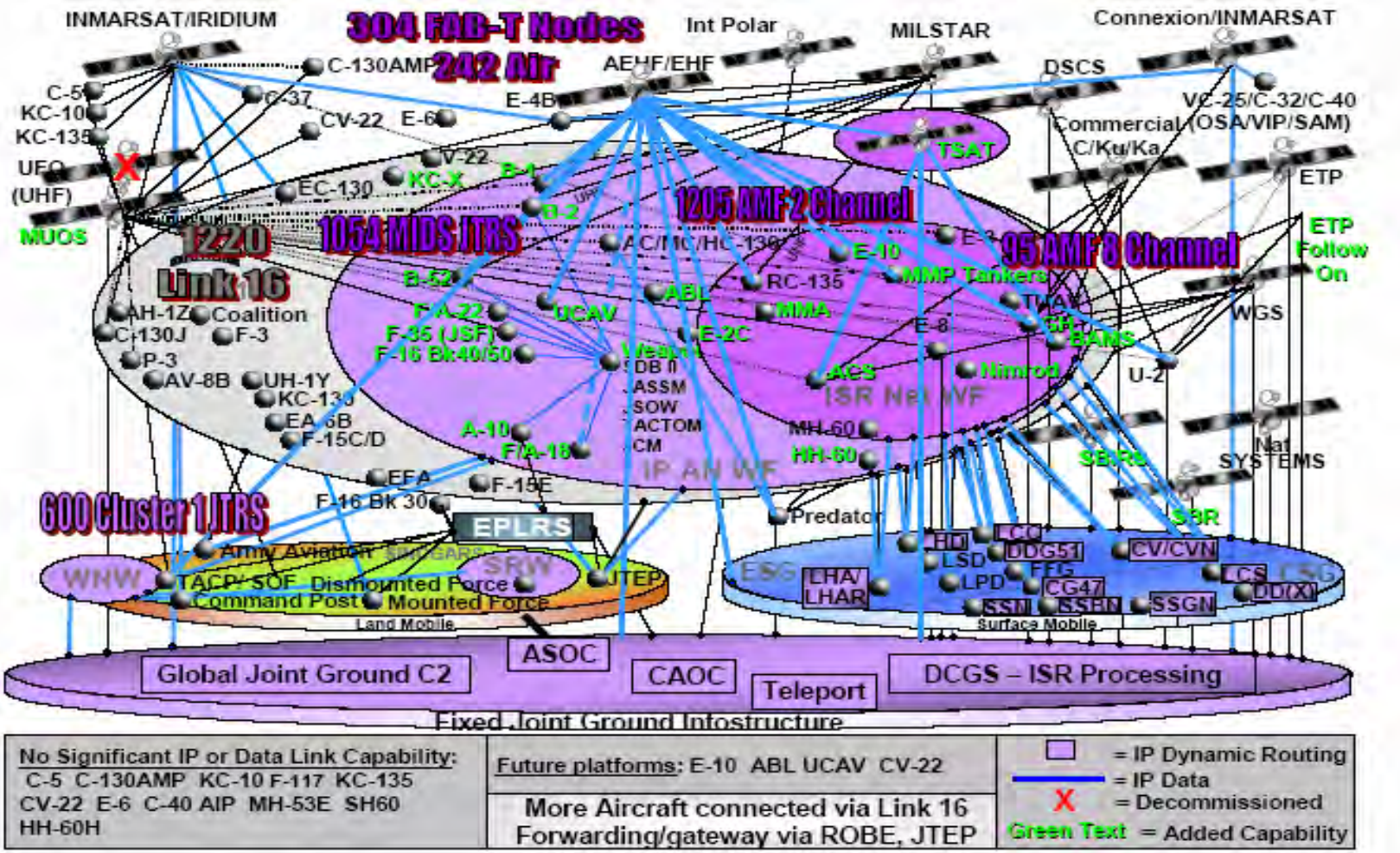


Figure 5.6—Air Force FY 2013 Communications Network Architecture

More Capable, Multi-Role / Multi-Function Aircraft















Joint Air Dominance Into the Future

- Two Decades of Dominance
- No Peer Today in Wealth, Technology or Capability
- Competition / Challenges on the Horizon
- Focus / Emphasis for the Future



2025 Future Total Force

- **Modernization with Aggressive Divestment**
  - Meets OSD fiscal Guidance
  - Manages Investment bow wave
- **Smaller Force, Increased Capability**
  - 25% fewer fighters
  - Higher crew ratios for increased utilization
  - 100% PGM capable and 90%+ LO fighter force
- **Even More Support to Joint Enablers**
  - More airlift/refueling capability from smaller force
  - Rejuvenated more capable space constellations
  - 24/7, all weather, persistence air breathing ISR
  - All weather CAS
- **Re-organize/Re-shaping for the Future**
  - Integrating Active, Guard and Reserve
  - Battlefield airmen to support all ops
  - Properly aligned warfighting HQ and Space
  - More AEF deployable personnel

RANGE

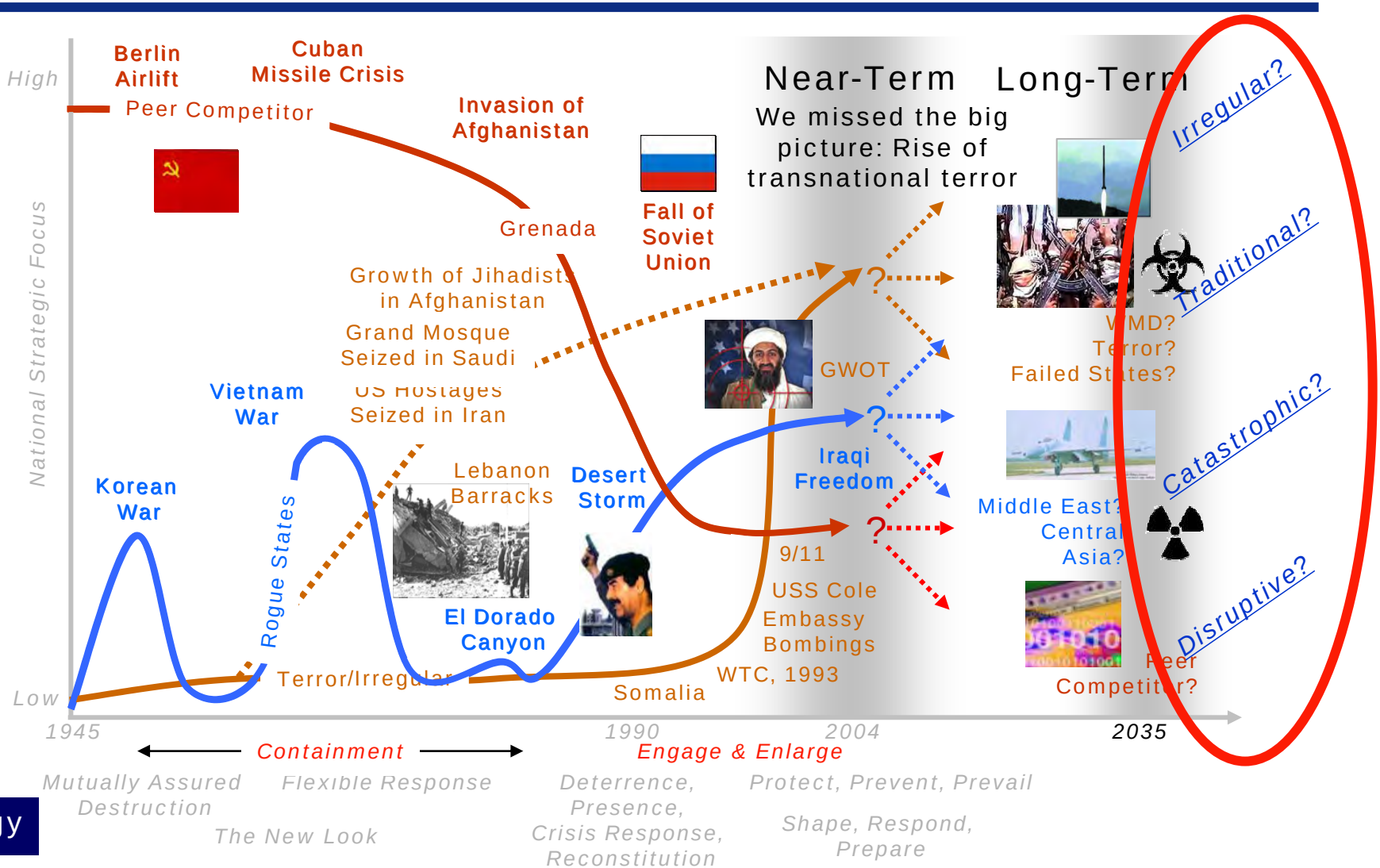
PAYLOAD

PERSISTANCE

ACCESS

SURVIVABILITY

The Planner's Dilemma: Now, Then, and In Between



Strategy



Composeable FORCEnet:

Composeable Command and Control for Joint Expeditionary Decision Making

presented at

The Tenth Annual

Expeditionary Warfare Conference

"The U.S. Navy announced that it has released a senior Al Quaeda terrorist after questioning him extensively for 27 days while being held prisoner aboard a U.S. Navy aircraft carrier in the Arabian Sea. In a humanitarian gesture, the terrorist was given $50 U.S. and a white 1962 Ford Fairlane automobile upon being released from custody."


In 2005, the U.S. Navy institutes
its new “Terrorist Catch and Release Program”

Joint Battlespace Awareness Command and Control The Nature of the Challenge

- Joint Expeditionary Warfare arguably the most challenging operational mission
- Joint Expeditionary Warfare is more than Joint, it is interagency and coalition
- Battle Management Command and Control is crucial to the Commander's ability to *command* and influence the outcome
- BMC2 systems must deliver the requisite degree of situation awareness to *all* players – not just the commander on the flagship

…so how are we doing?

SSC SAN DIEGO

SPAWAR Systems Center San Diego

"The net-centric idea of lifting the fog of war by creating this giant strategic technological eye in the sky has been an abject failure with hundreds of billions of dollars wasted.

MGEN Robert Scales USA (ret)

Commenting on US Army Ops in OIF

"Operation Peach"

Defense News September 12, 2005

SSC SAN DIEGO

SPAWAR Systems Center San Diego

"The enemy has moved into a situation where American power that is dominant is increasingly irrelevant. The enemy has moved into urban areas where our technology is less relevant and we can't bring as much technology to bear. So…we do have to reverse course and get more technology in support of the rifle squad."

Lieutenant General J.M. Mattis
Commander MCCDC

SSC SAN DIEGO

Joint Battlespace Awareness Command and Control
What Should We Deliver to the Warfighter?

SPAWAR Systems Center San Diego

- Exploit every source of information
- Provide shared situational awareness
- Support dominant speed of command
- Permit precise fire control execution
- Operate synchronously & asynchronously
- Provide agility and flexibility

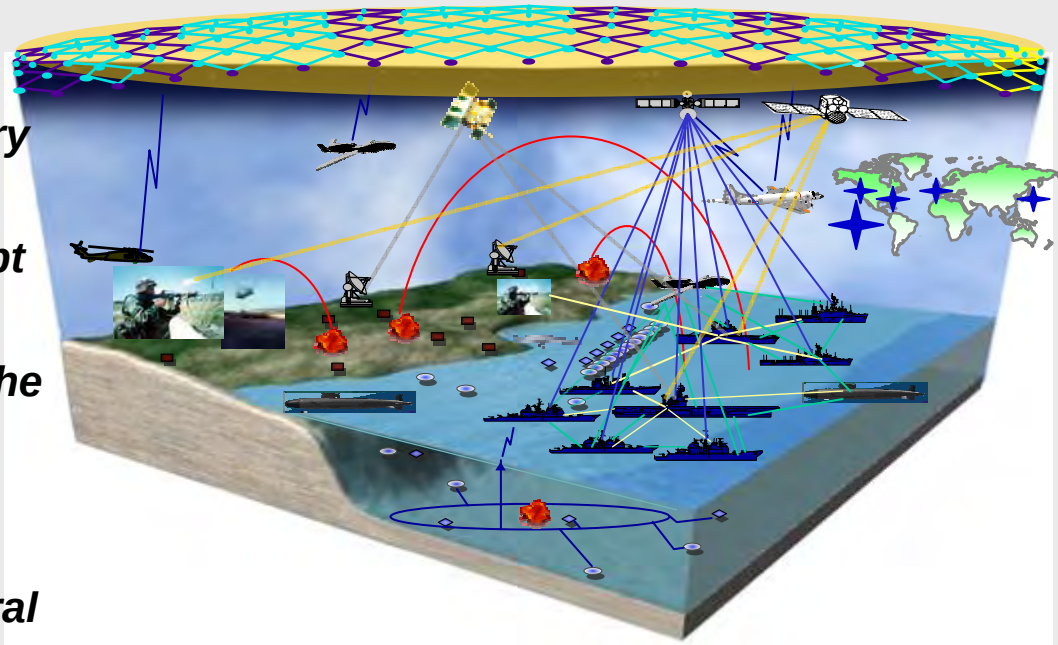
…so how do we deliver a C4ISR solution?

The Goal of C4ISR: To Support Joint Battlespace Awareness Command and Control



The goal has changed little over history

What Is FORCEnet?



Network Centric Warfare Is the Theory

Net-centric Operations Is the Concept

FORCEnet Is the Process of Making the Theory and Concept a Reality

"FORCEnet is defined as the operational construct and architectural framework for naval warfare in the Information Age, integrating warriors, sensors, command and control, platforms, and weapons in a networked, distributed combat force"

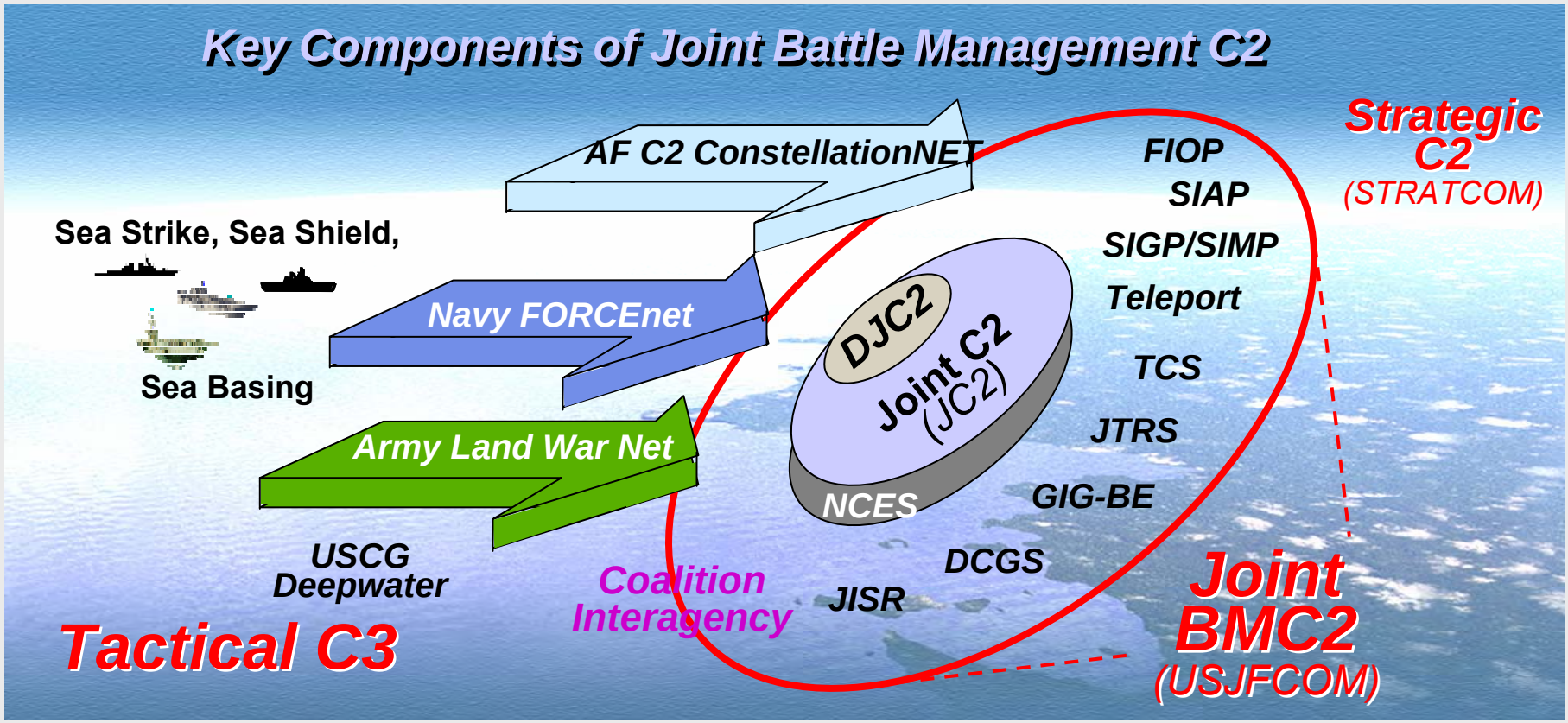
Source - *FORCEnet: A Functional Concept for the 21st Century:*

February 2005

- FORCEnet Is Not
  - A Program of Record
  - A Redundant Effort
  - A Box or System
  - Just a Network

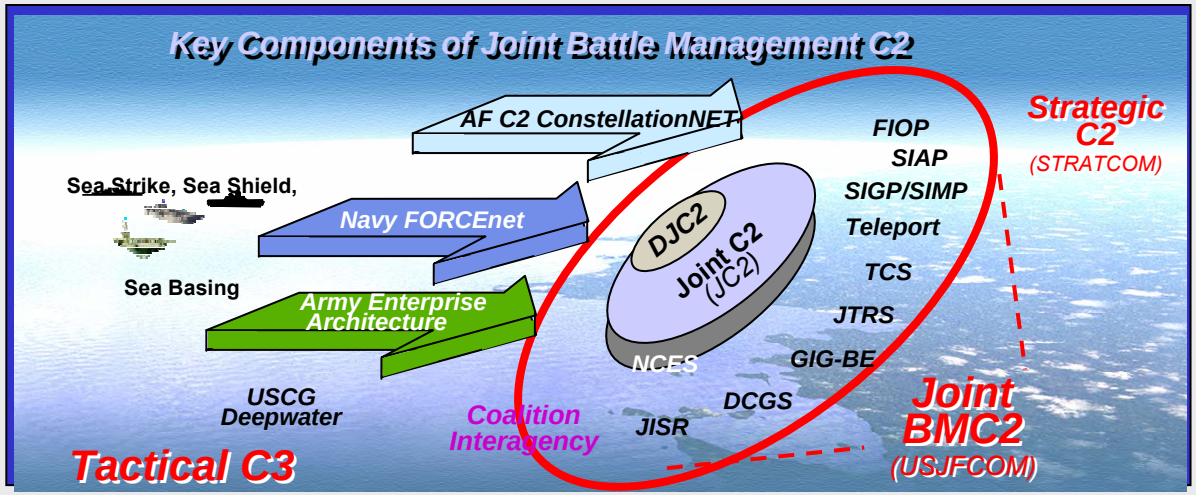
FORCEnet: Naval Component of the Global Information Grid (GIG)

FORCEnet Is an Inherently Joint/Coalition Concept.



FORCEnet

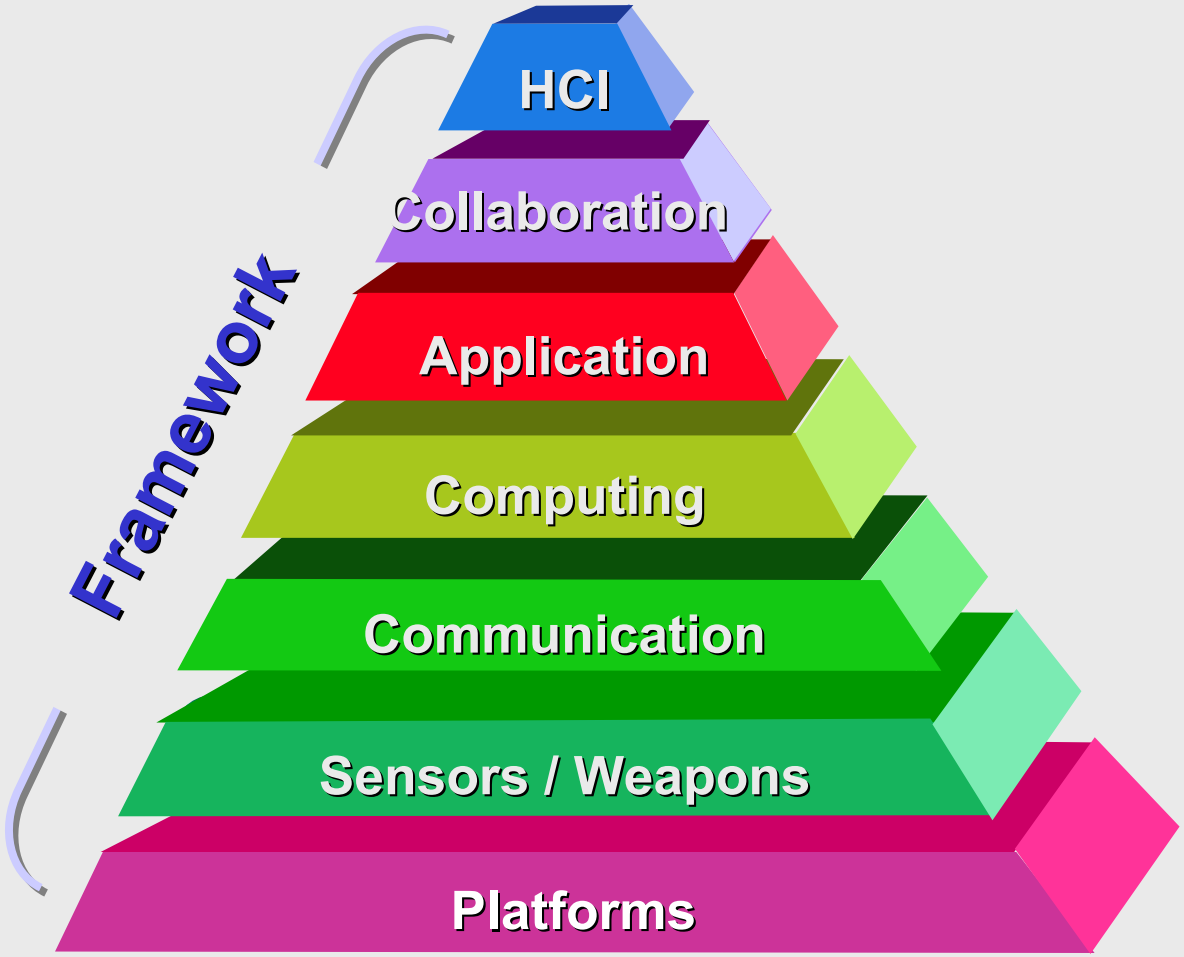
The *Naval* component of the Global Information Grid



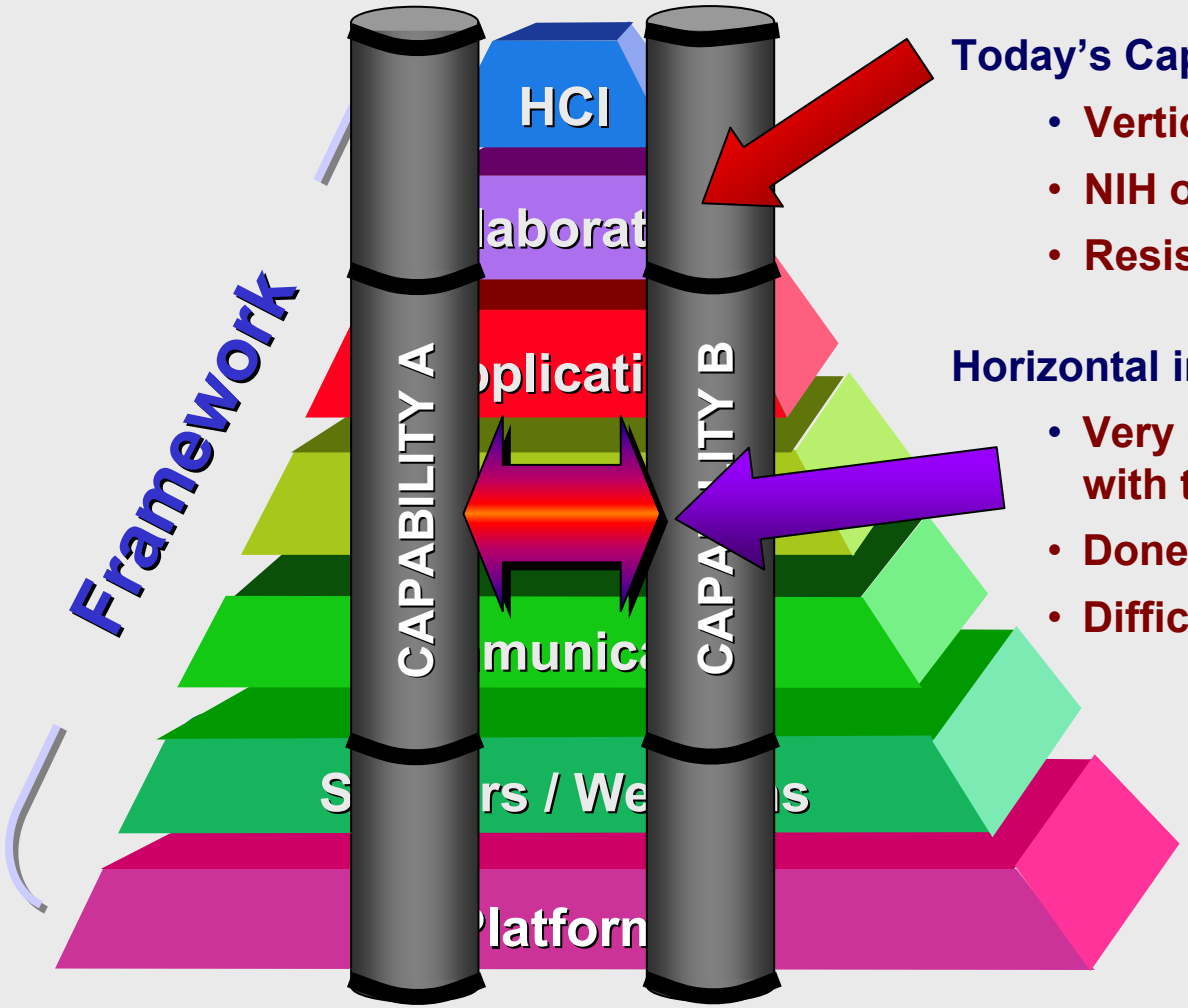
FORCEnet means:

- A warfighter, or organization, can collaborate with anyone, anywhere, anytime
- Warfighters can allocate bandwidth and priorities for applications and individuals and define their own QOS
- Warfighters can get sensor coverage when and where they need it
- Warfighters can tailor their information requirements and presentations to support their missions
- Warfighters can put the right weapon on the right target

Technology Building Blocks of FORCEnet



FORCEnet Capabilities Are "Composed" of Technologies



Today's Capabilities:

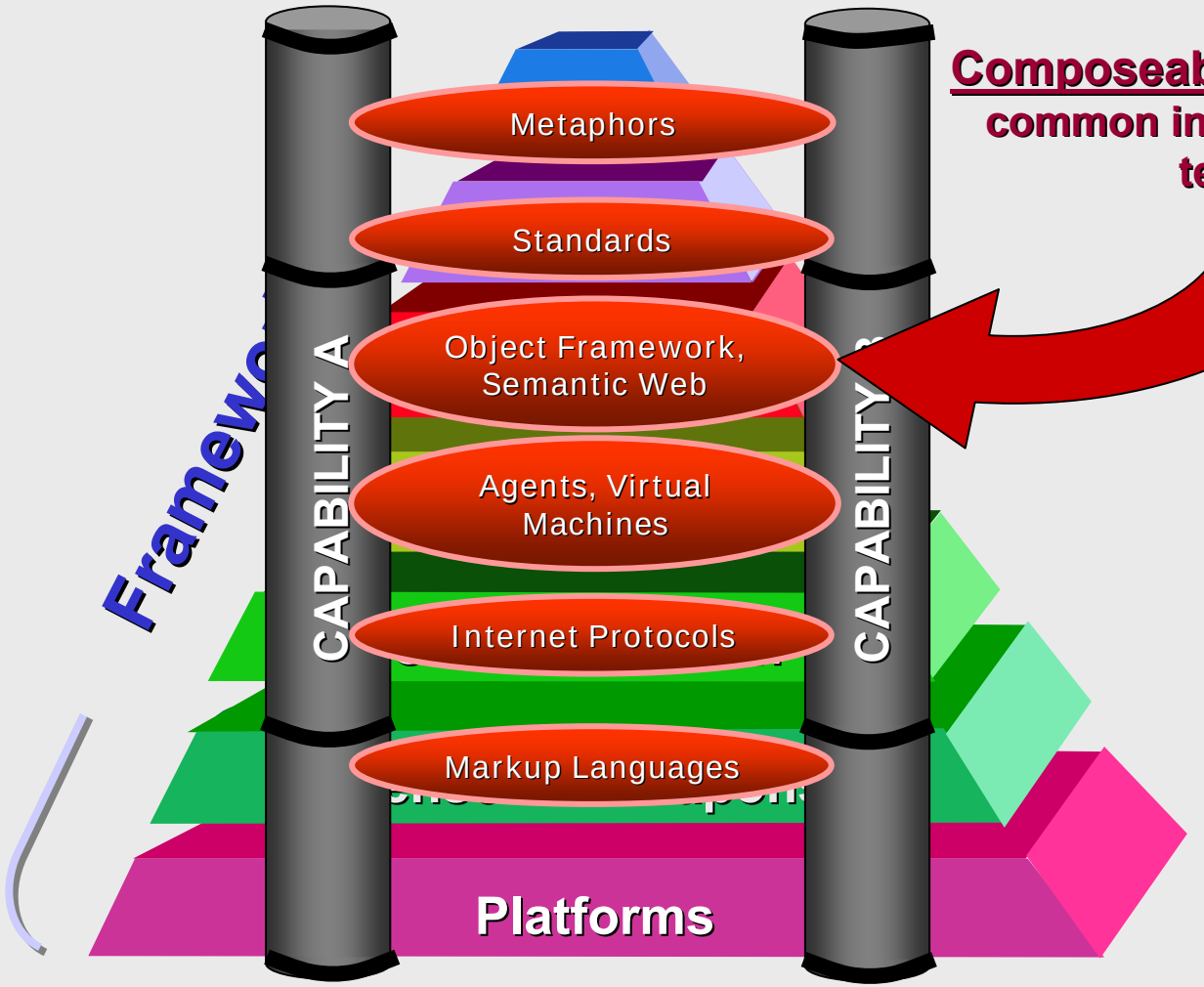
- Vertically Integrated Stovepipes
- NIH often suboptimizes capability
- Resistant to new technology

Horizontal integration is:

- Very costly, increases exponentially with the number of systems
- Done case by case by experts
- Difficult, at best, to sustain

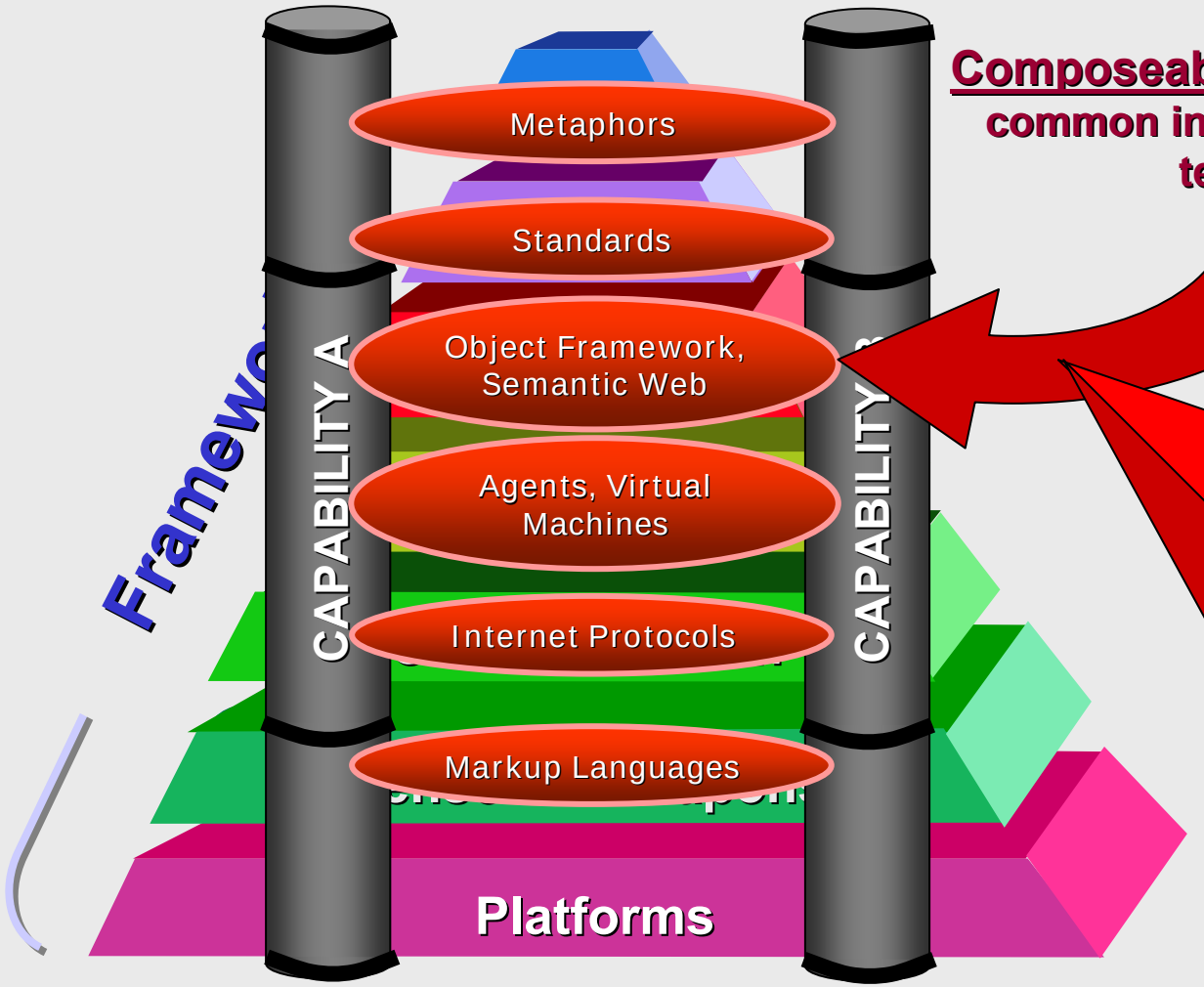
Systems-of-Systems increase non-interoperability over time

Interoperability and Access Through Composeablity



Composeable Web Services provide common interfaces across uncommon technical solutions

Interoperability and Access Through Composeablity



Composeable Web Services provide common interfaces across uncommon technical solutions

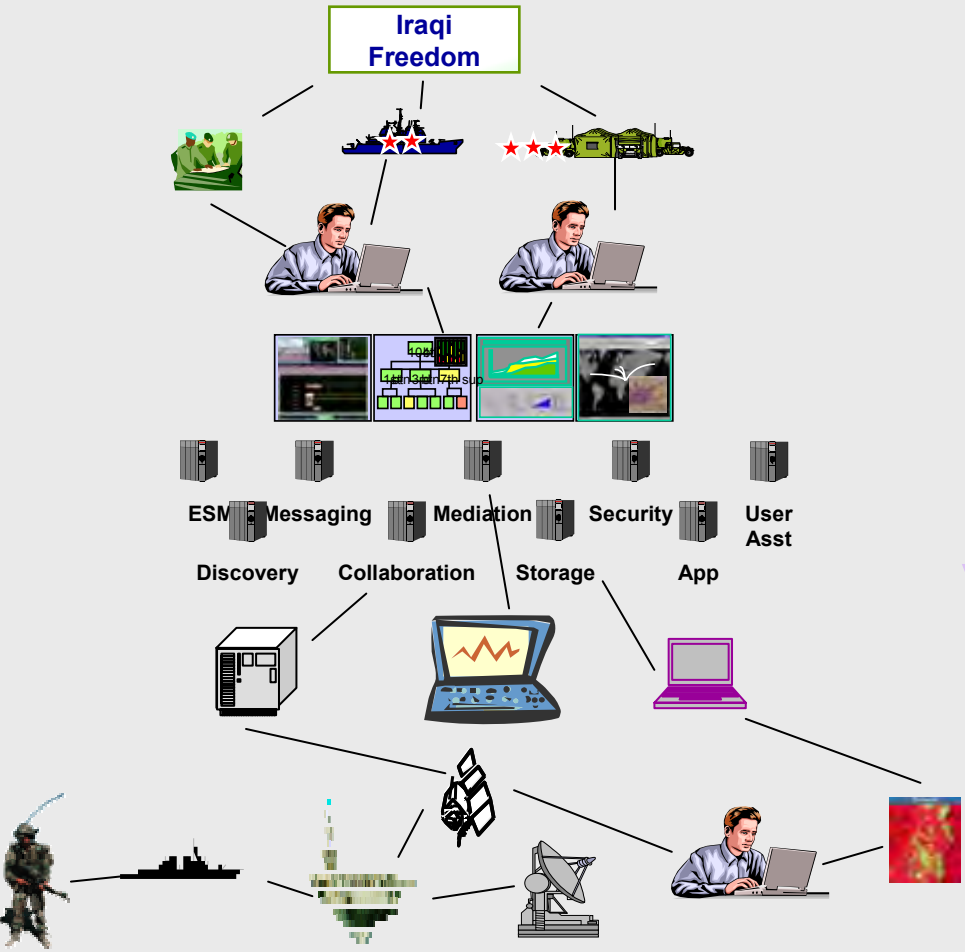
You use this approach at home and at the office every day

Composeable FORCEnet

Services-oriented Information Architecture

(residing on the GIG network)

Transformational Operations – Transformational Acquisition



Mission Requirements

- Composeable Doctrine
- Composeable Organizations
- Composeable COIs
- Composeable Pictures
- Composeable Services
- Composeable Hardware
- Composeable Sources

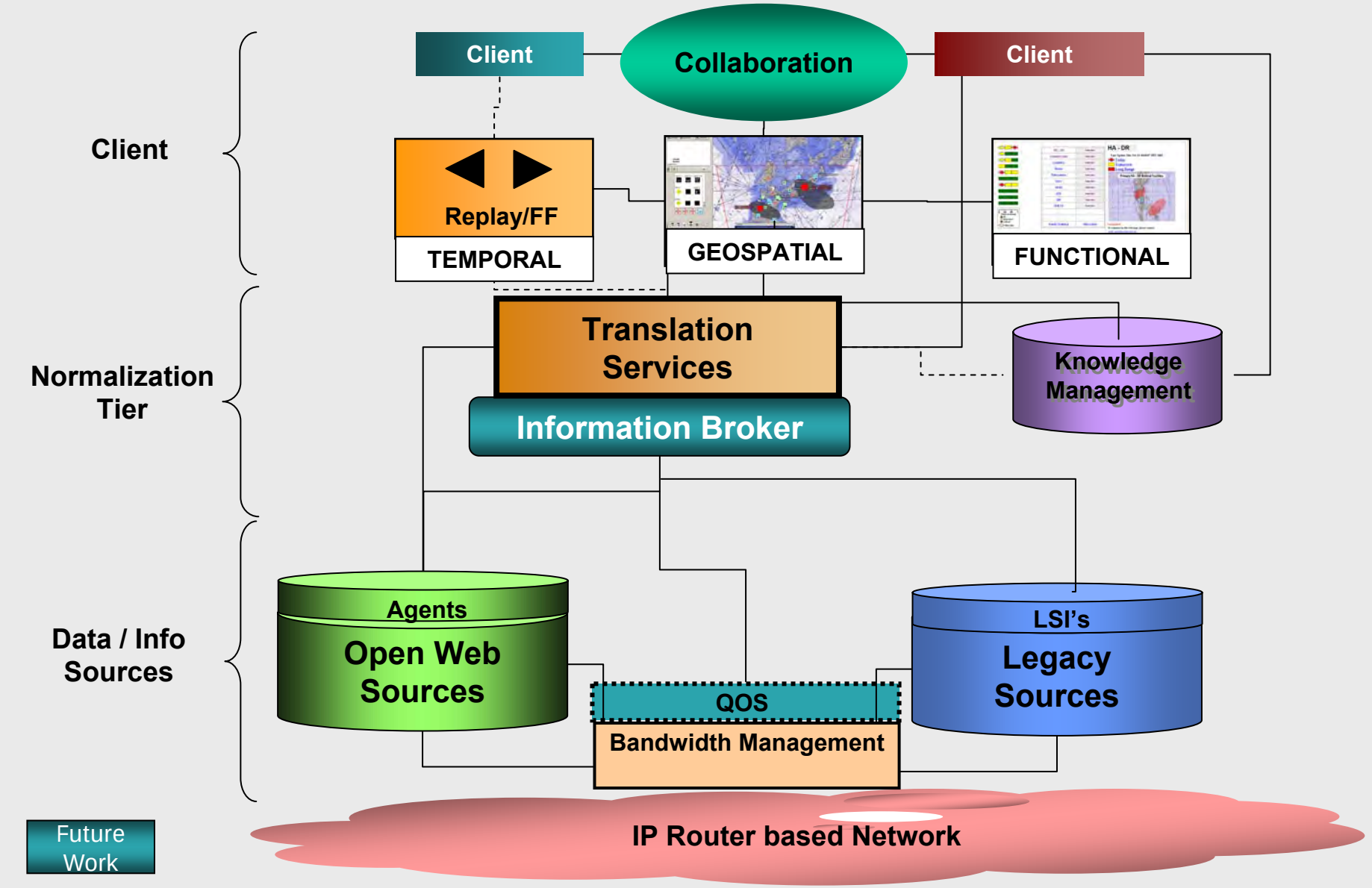
Technical Capabilities

Mandated Services-Oriented Architecture Implies a Mandate for Composeability

- DoD Integrated Interoperability Plan
  - ASD (NII), JFCOM, DISA and Services will each submit guidance, plans, and migration strategies to complete transition to the JC2/UDOP NCES architecture.
- USJFCOM Joint Transformation Roadmap
  - USJFCOM provides direction and guidance and oversight in development of operational and tactical level C2 capabilities.
- Chief of Naval Operations: FORCEnet Requirements/Capabilities and Compliance Policy CNO/N6N7 3170 27 MAY 05
  - Director for Net-Centric Warfare (N71) is responsible for the oversight and maintenance of this policy.
- Naval Network Warfare Command (NETWARCOM)
  - Serves as the FORCEnet Operational Agent who, in coordination with MCCDC, is developing both the FORCEnet Integrated Architecture.

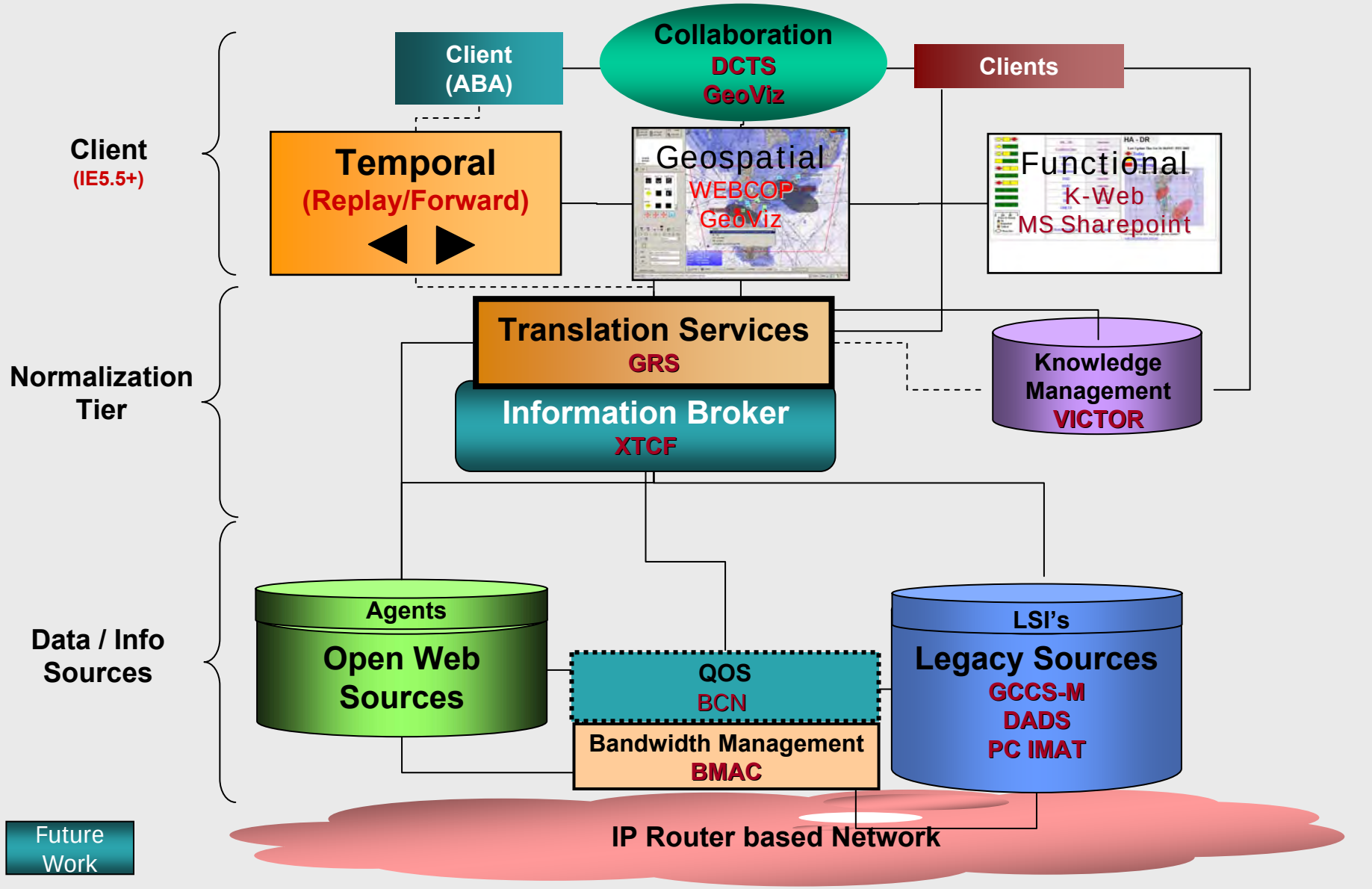
Demonstration Architecture

Built Around a Geospatial Hub



Demonstration Components

It's about Composeable Functionality – Not the Specific Components

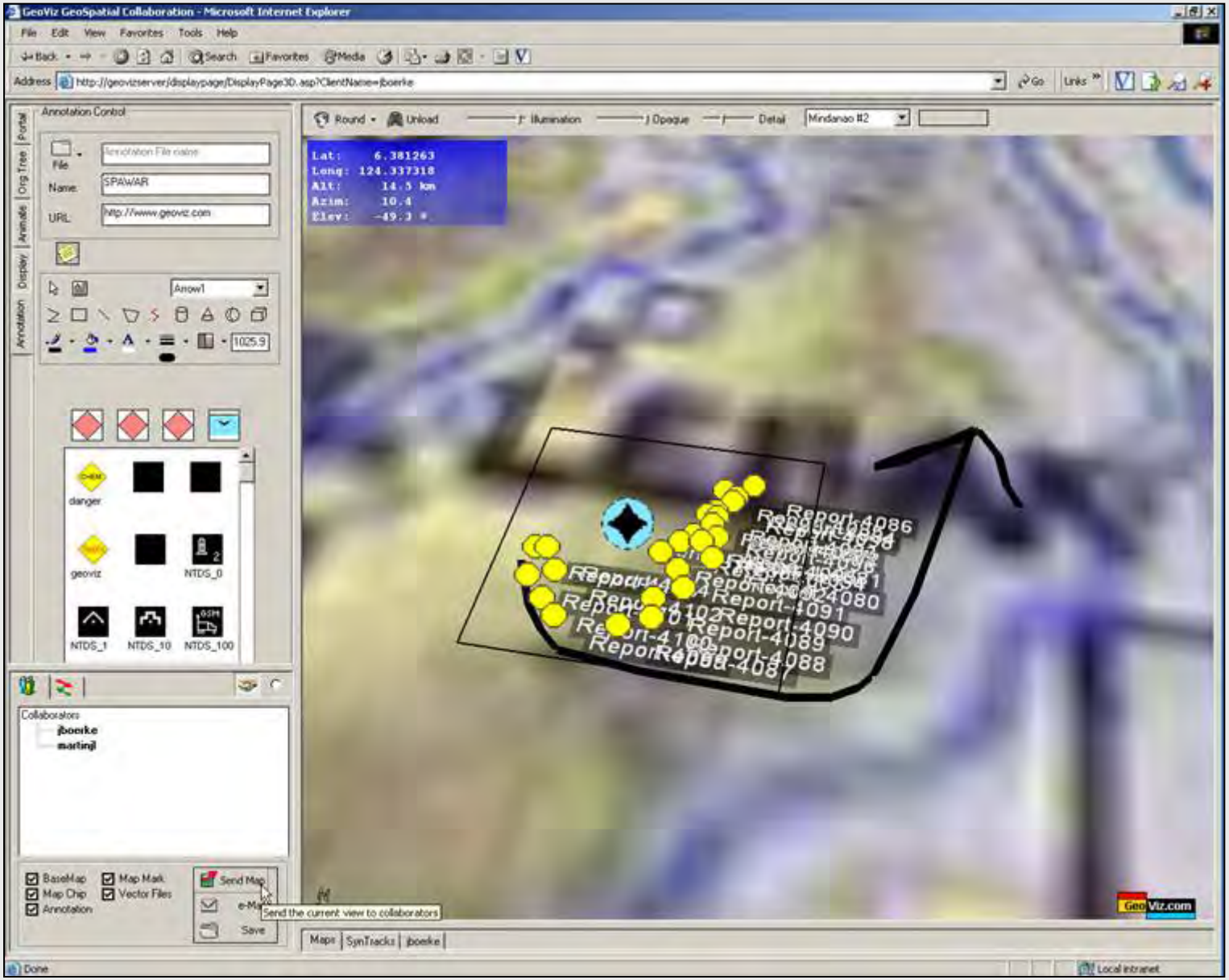


Sample Display: GeoViz



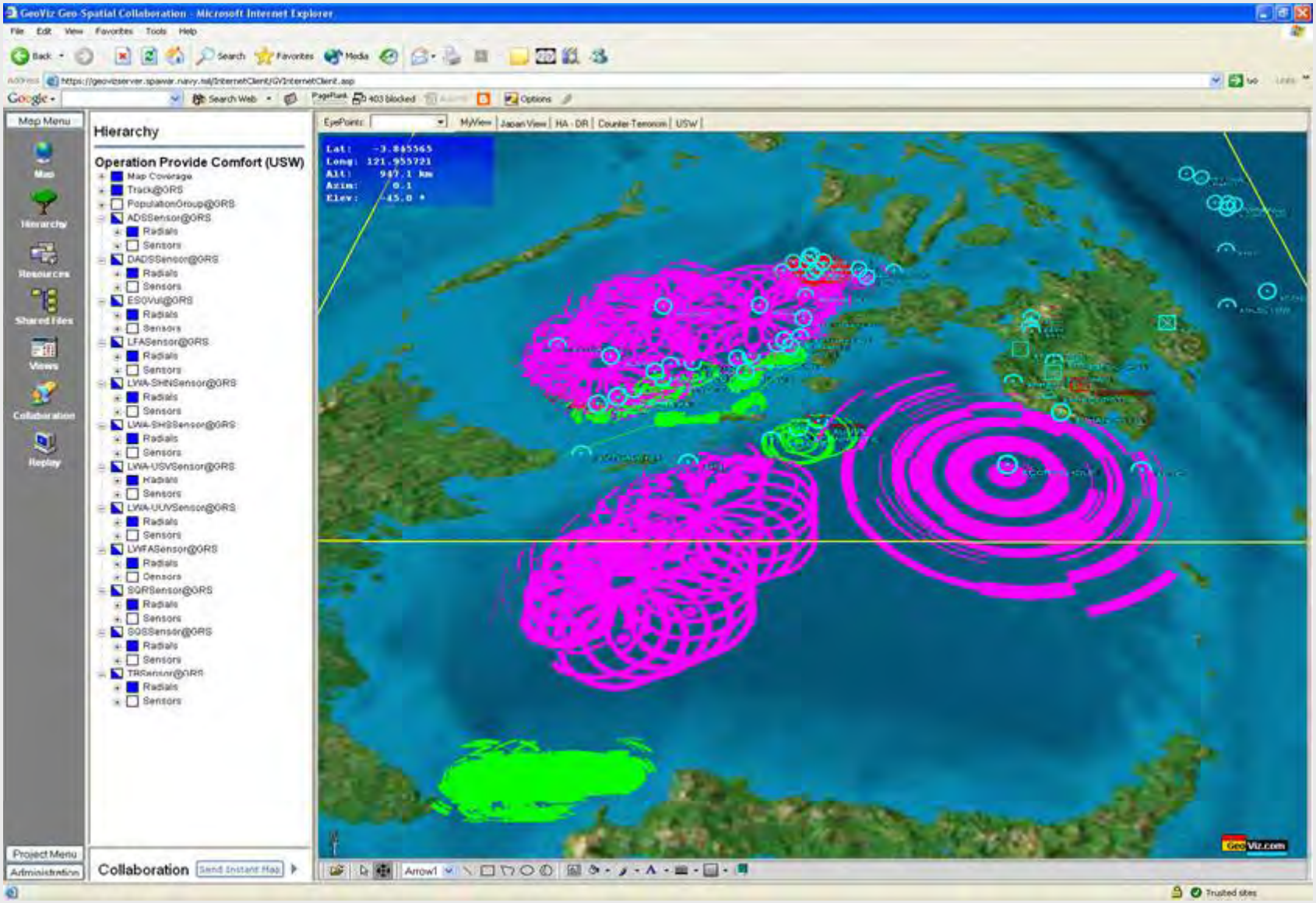
Sample Display

GeoViz subscribes to UGS data that was published to the GRS

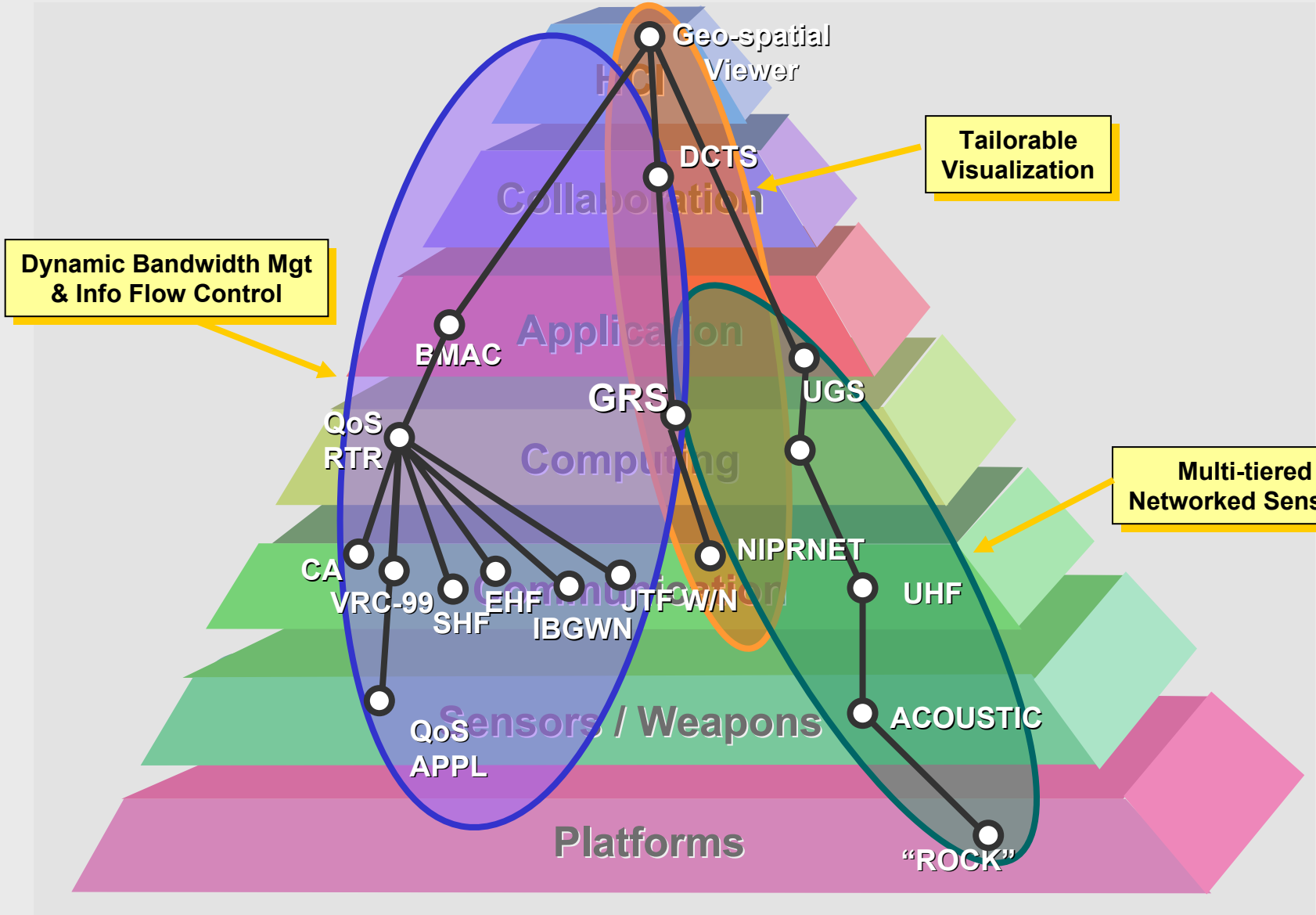


Sample Display

GeoViz subscribes to PC IMAT predictions



The Goal
Composed Capabilities



Composeable FORCEnet Through Systematic Experimentation

SAN DIEGO

SPAWAR Systems Center San Diego

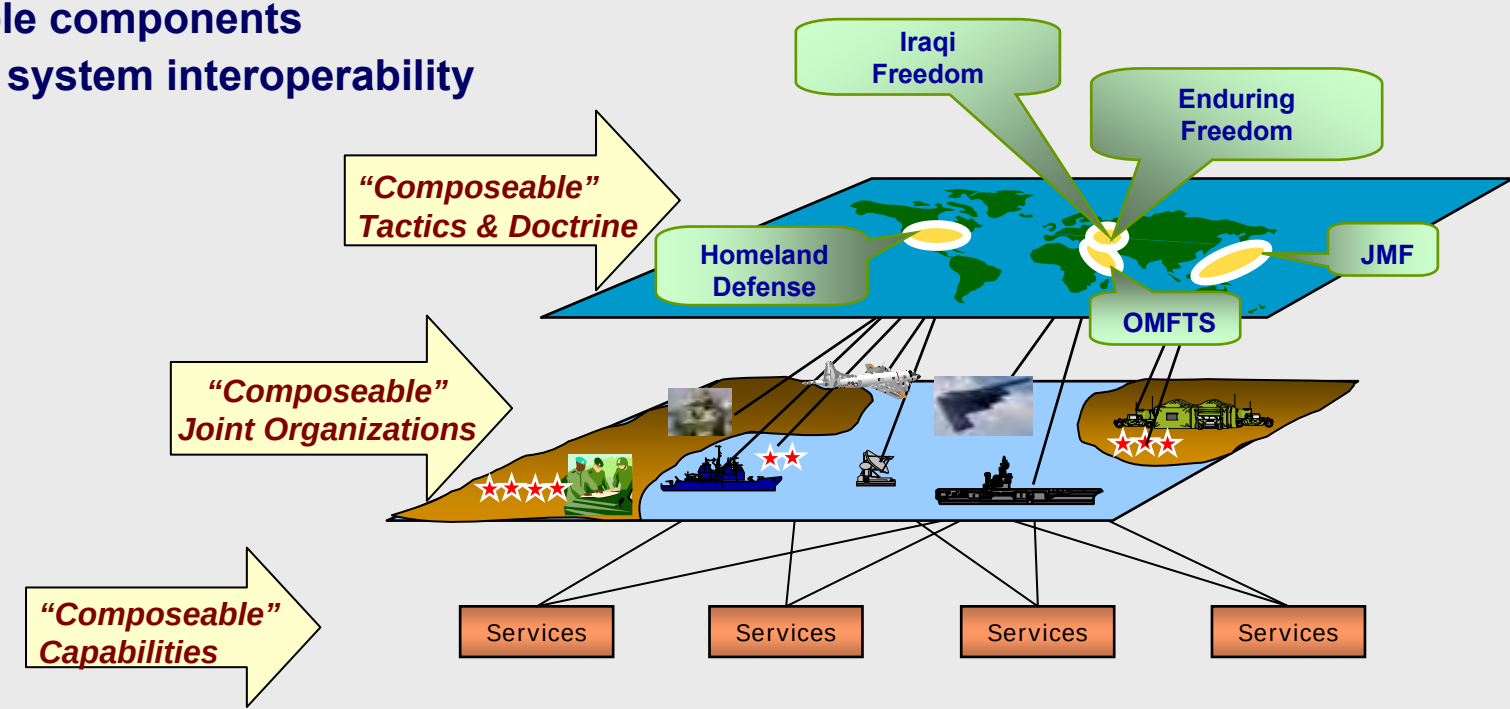
Transform Operations

- Assemble components on the fly
- Joint - Agile - Tailorable
- Geospatial –based shared collaboration
- Intuitive linkage to information

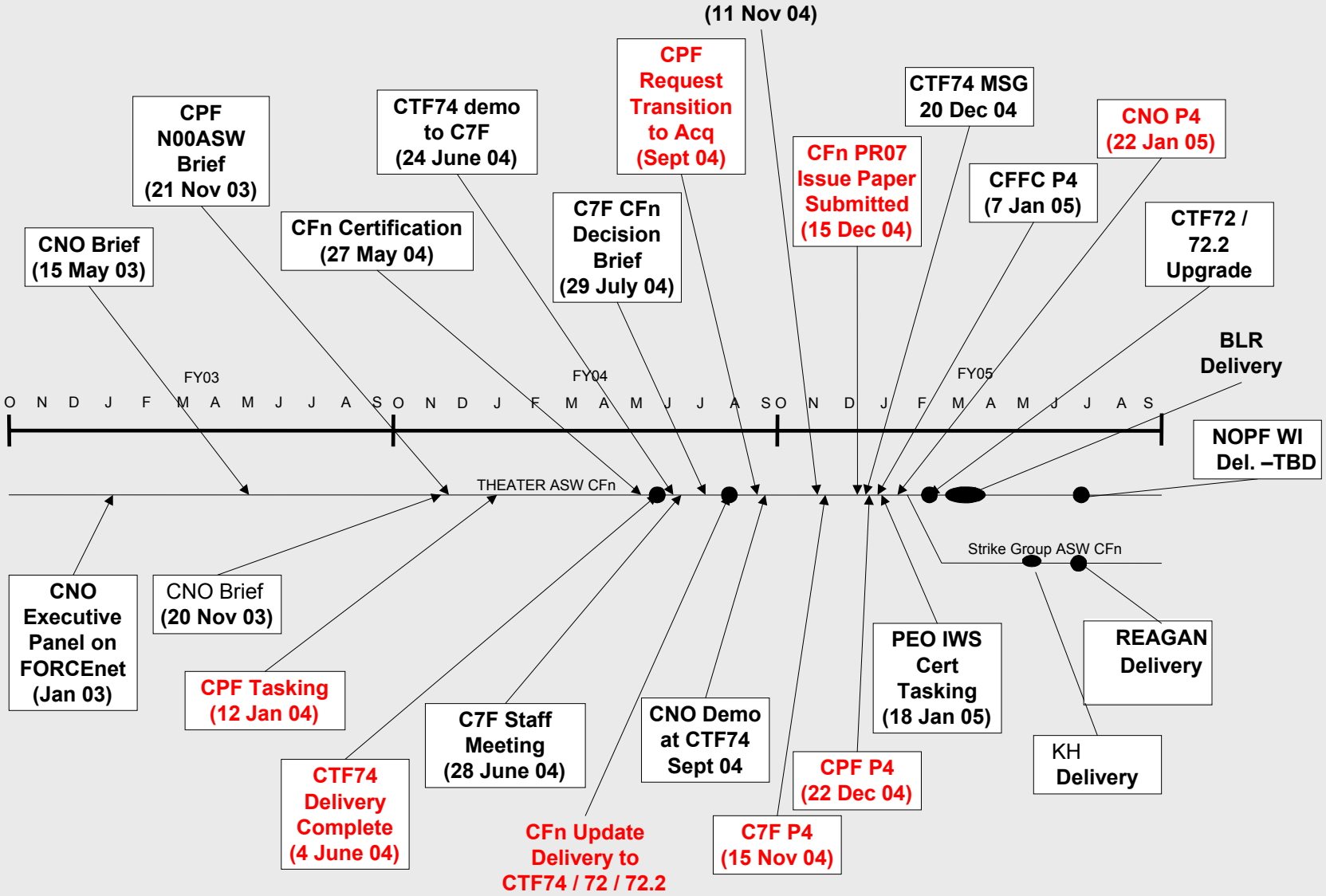
Transform Acquisition

- Increase Speed-to-Capability
- Reusable components
- Legacy system interoperability

Plug-n-Fight!



CFn History to Date



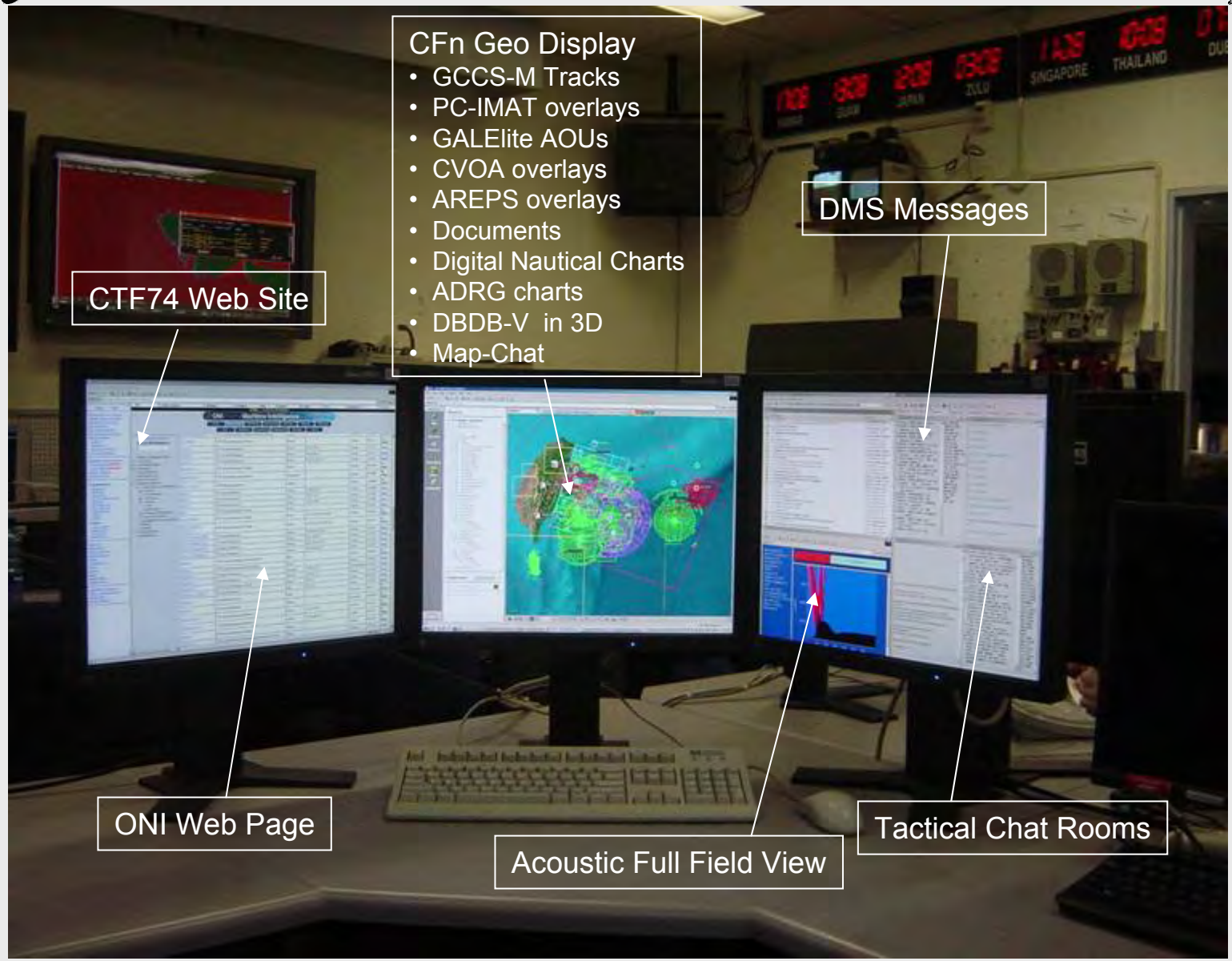
Where CFn is Currently Deployed

- CTF74
  - Software update to Build 3 level
- CTF72
  - Hardware upgrade to full suite (two servers)
  - Software update to Build 3 level
- CTF72.2
  - Hardware upgrade to full suite (two servers)
  - Software update to Build 3 level
- USS BLUE RIDGE
  - Hardware installation of a full suite (2 servers/6 clients)
  - Software update to Build 3 level
- USS KITTY HAWK
  - Hardware installation of a full suite (2 servers/9 clients)
  - Software update to Build 3 level
- Kunia Regional Security Operations Center

TASW CFn Battle Watch Captain Display at CTF 74

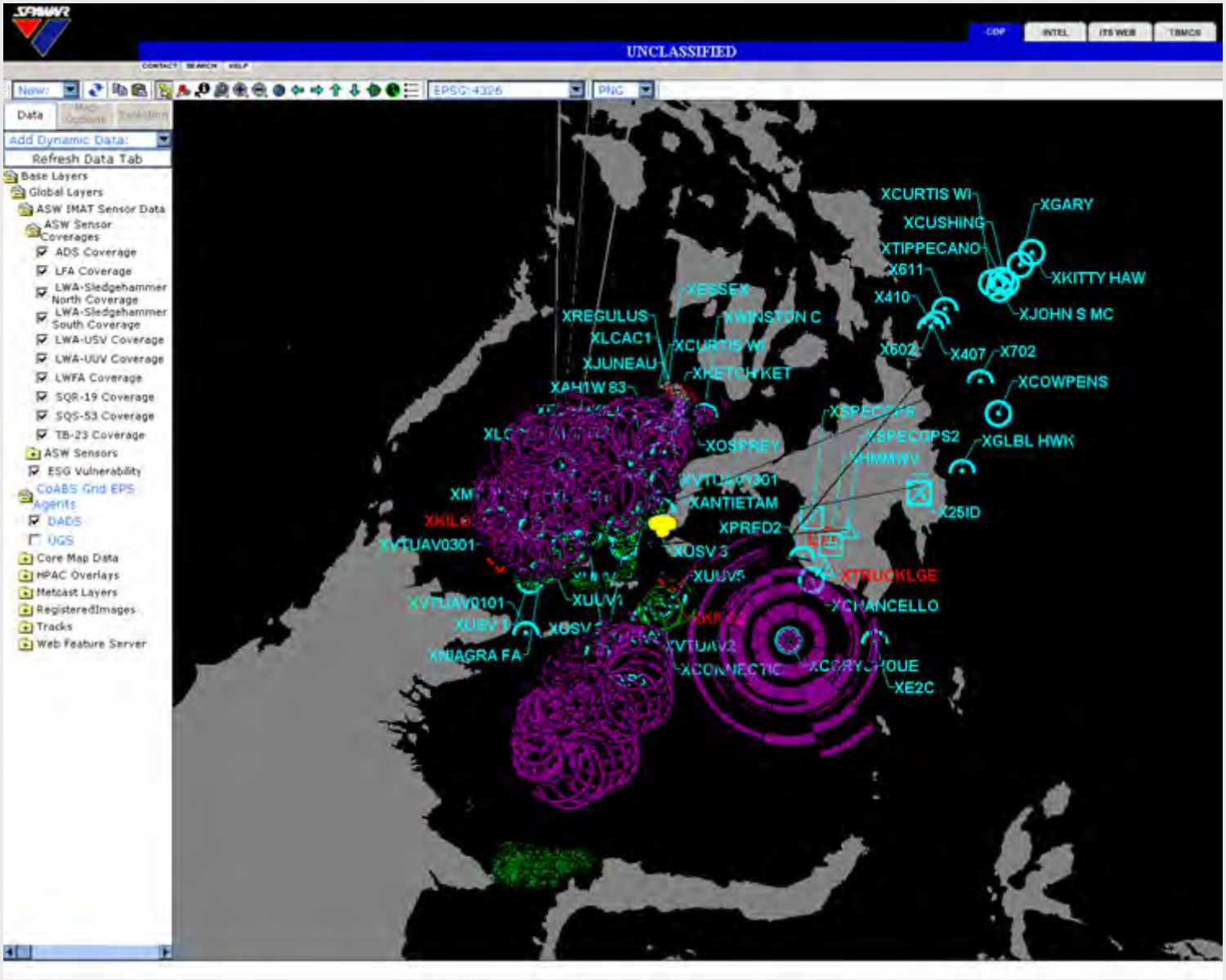
SSC SAN DIEGO

SPAWAR Systems Center San Diego



CFn Web based C2 provides improved understanding

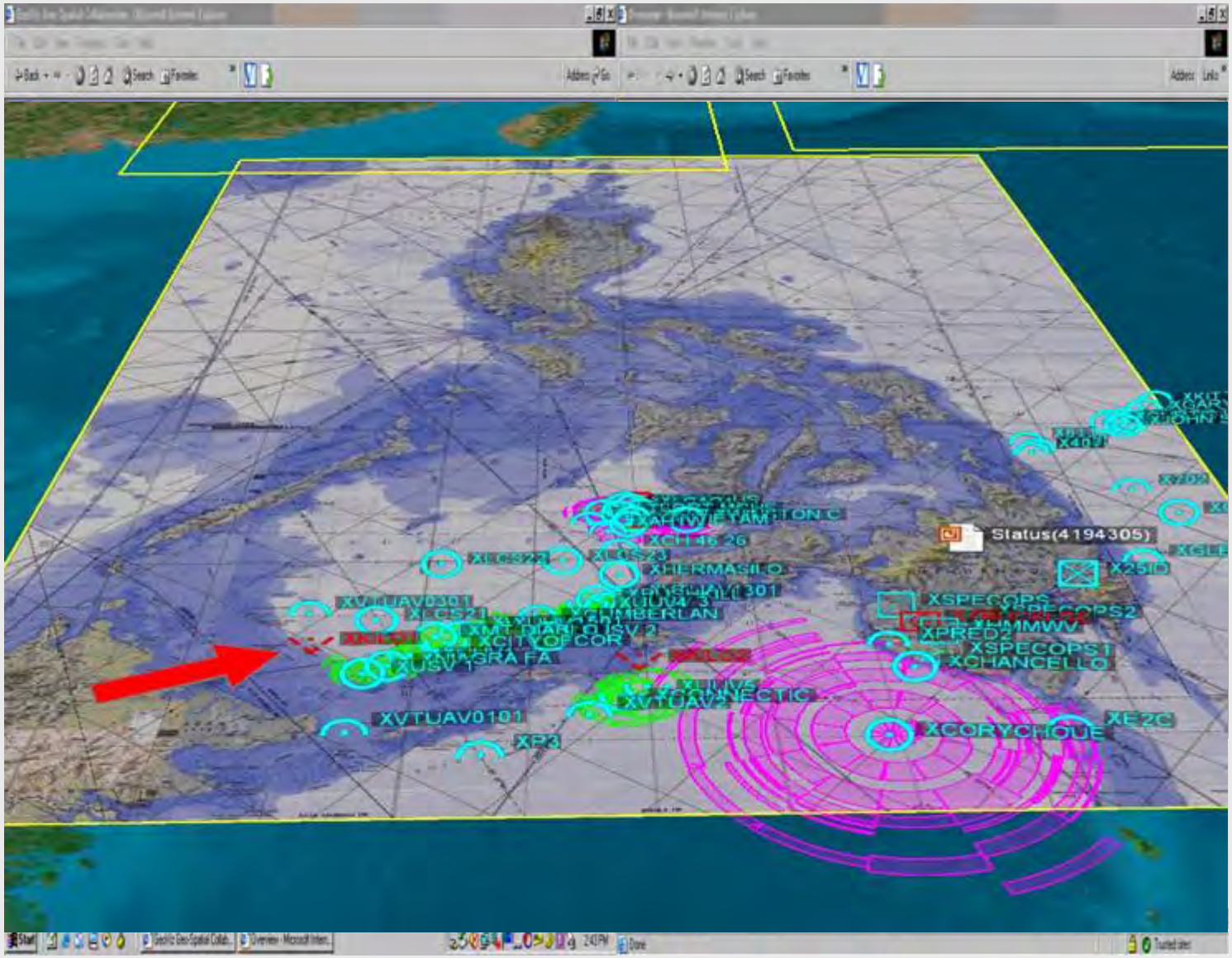
What CFn looks like on WebCOPat CTF74



SSC SAN DIEGO

What CFn looks like from the Geospatial Collaboration Service at CTF74

SPAWAR Systems Center San Diego



SSC SAN DIEGO

SPAWAR Systems Center San Diego

Summary

- Composeability
  - Components rather than systems of systems
- Composeable FORCEnet
  - Better Decisions, Faster, with Fewer People
- Composeable FORCEnet demonstrates the tactical and operational advantages of enabling joint warfighting

SSC SAN DIEGO

Summary

SPAWAR Systems Center San Diego

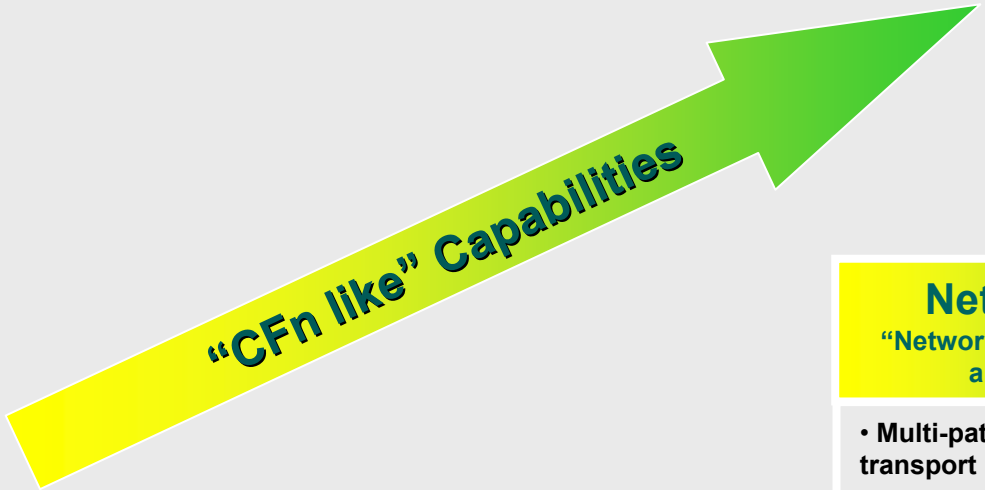
- Ultimately, the naval and Joint warfighter – and not the engineers - will use the capabilities needed for the immediate operational and tactical problem.
- Warfighters operating in a Composeable FORCEnet-enabled environment will soon be able to *compose* the C4ISR components developed by the engineering community to ensure superior decision-making.
- This capability has the potential to enable the Joint Force Commander to achieve the maximum degree of operational effectiveness across the spectrum of warfighting and to do it faster than ever before.

SSC SAN DIEGO

SPAWAR Systems Center San Diego

Backups

Capability Stepping Stones to FORCEnet



Full IT21
"Online"

- IP Reach Back
- Local Area Networks
- Wideband Receive
- RF Management
- Survivable comms

Level 0

Today

Net Connected
"Improved decision making"

- Web-based services
- Improved network reliability and performance
- Increased bandwidth
- Improved coalition operations and data sharing
- Tailorable situational awareness tools
- Standardized data exchange between domains
- Defense in depth

Level 1

FY07

Net Enabled
"Network based command and control"

- Multi-path and improved transport reliability
- Dynamic bandwidth mgmt
- Customized applications and data sources
- Common infrastructure and data exchange standards
- Improved data exchange across domains
- Enterprise management for asset analysis and repair
- Initial knowledge management and automated decision aids
- Assured sharing
- Distributed command and control operations
- Modular and open architecture

Level 2

FY10

Fully Net Ready
"Decision-making under undesirable conditions"

- Robust, reliable communication to all nodes
- Reliable, accurate and timely information on friendly, environmental, neutral and hostile units
- Storage and retrieval of authoritative data sources
- Robust knowledge management capability with direct access ability to raw data
- User-defined and shareable SA
- Distributed and collaborative command and control
- Automated decision aids to enhance decision making
- Information assurance
- Seamless cross-domain access and data exchange.
- Interoperability across all domains and agencies
- Autonomous and disconnected operations
- Automatic and adaptive diagnostic and repair
- Modular architecture to expedite new capabilities

Level 3

FY14

What is Currently Being Delivered

- Hardware
  - DL380 servers to host the CFn services (two servers per site)
  - Video boards to drive multi-headed displays (at key locations per site)
  - LCD flat panel displays (two or three per key location)
- Software
  - Geospatial Replication Service (GRS)
    - Subscribes to information from GCCS-M, AREPS, PC-IMAT, GALElite
    - Subscribes to information off site as well as on site
  - WebCOP Service
    - Provides CFn 2D COP displays via a browser
    - Available at any SIPRnet workstation with a browser
  - Geospatial Collaboration Service (GCS)
    - Provides CFn 3D COP displays via browser with a plug-in
    - Provides map-chat collaboration services
    - Provides information tailoring through operations and views
  - Advanced Refractive Effectives Prediction System (AREPS)
    - Provides radar and radio propagation prediction for air and surface units
  - CFn Toolkit
    - Prepares maps and imagery for publication into CFn services

SSC SAN DIEGO

Planned Installations

SPAWAR Systems Center San Diego

- NOPF Whidbey Island
  - Hardware installation to full suite (two servers)
  - Software update to Build 3 level
- USS RONALD REAGAN
  - Hardware installation to one full suite (two servers)
    - One full suite tied to GCCS-M (CTF centric use)
    - Interfaces with CV-TSC and USW-DSS
  - Software update to Build 3 level



USTRANSCOM

United States Transportation Command

SEABASING

A TRANSCOM PERSPECTIVE

CAPT CRAIG GALLOWAY

OCT 2005

Outline

USTRANSCOM Distribution Process Owner (DPO)

- **JLOTS Operations and Capabilities Transition to Seabasing**
- **Seabasing Concepts**
- **Way Ahead**

USTRANSCOM













"Provide air, land, and sea transportation for the DOD, both in time of peace and time of war."

AMC





MSC



SDDC

One Team, One Fight…

Total Force: 155,833

Active: 51,560
Civilian: 16,504

Guard/Reserve: 87,769

…*MANY PLAYERS*

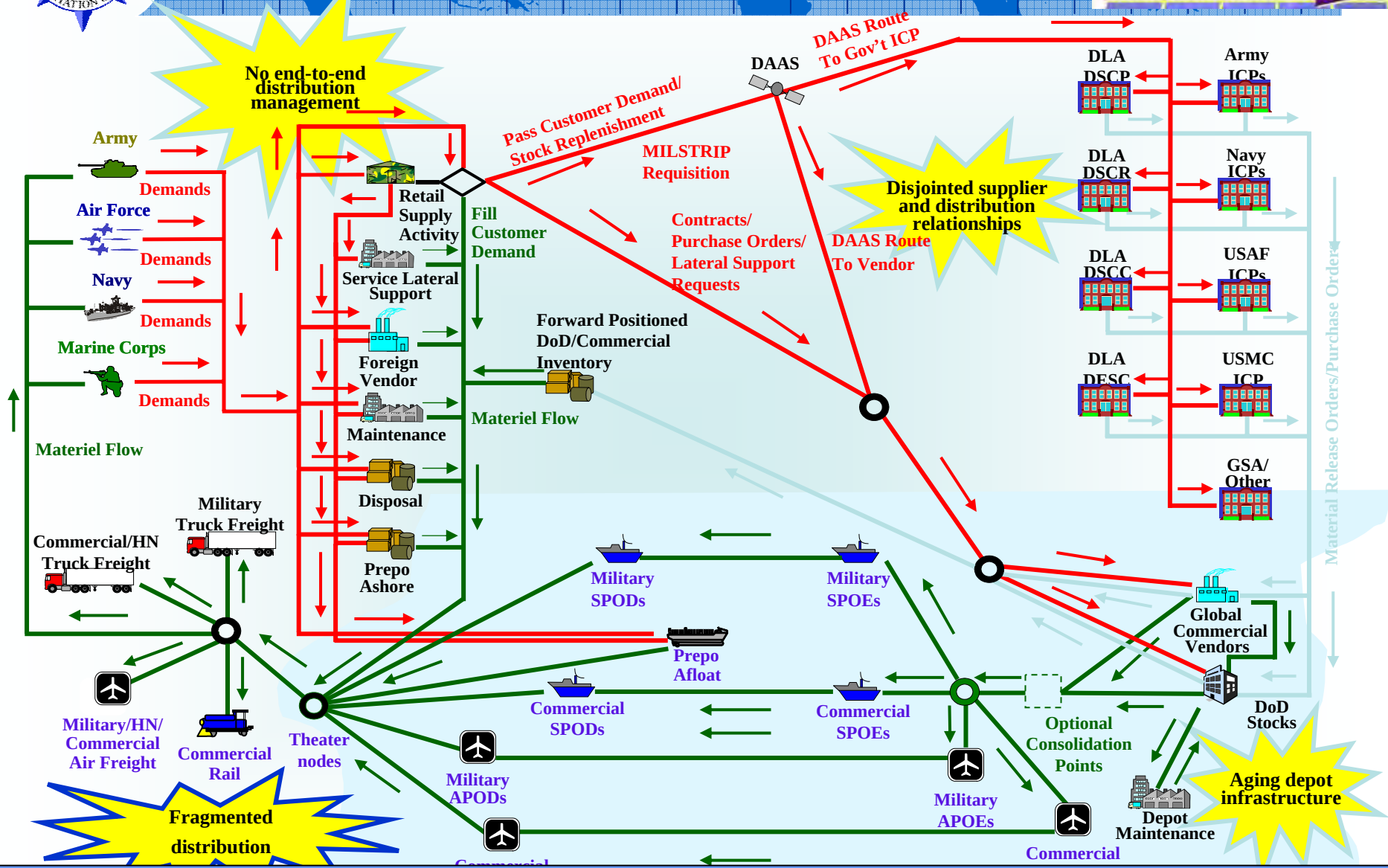
Active Military & Civilians

Reserve Personnel

Commercial (CRAF/VISA)

(U)

Distribution Challenge



Who's setting priorities?

Who's directing execution?

Who's the receiver?

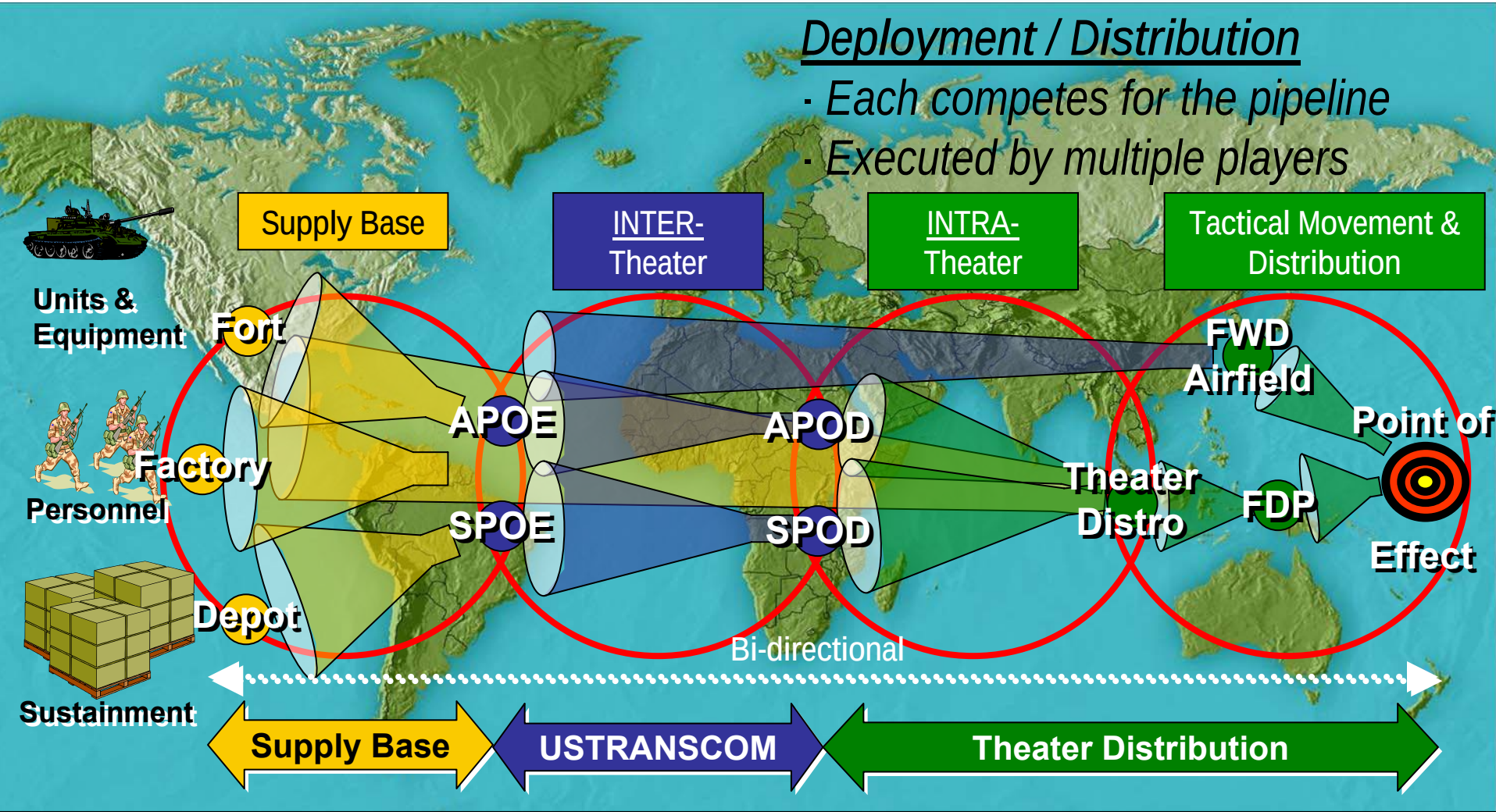
Who's metering the flow?

TRANSCOM Designations

- SECDEF designated CDR, USTRANSCOM as Distribution Process Owner – 16 Sep 03 memo. DPO is responsible to:
  - Improve overall efficiency & interoperability of distribution related activities
  - Serve as single entity to direct & supervise execution of the distribution system
- Distribution portfolio manager – designation 28 Jul 04 memo by DUSD (L&MR)
  - Currently 500 + IT systems supporting Distribution
  - Effort will be based on USTRANSCOM's previous migration reduction of IT systems from 175 to 30
- Acquisition Authority
  - Director Defense Procurement and Acquisition Policy delegated acquisition authority to USTRANSCOM on 6 Aug 04
  - Contracting efforts will be in accordance with DOD Directive 5158.4, specifically designed to procure commercial transportation services as necessary to carry out the mission of USTRANSCOM

"Before" Distribution Process Owner Designation

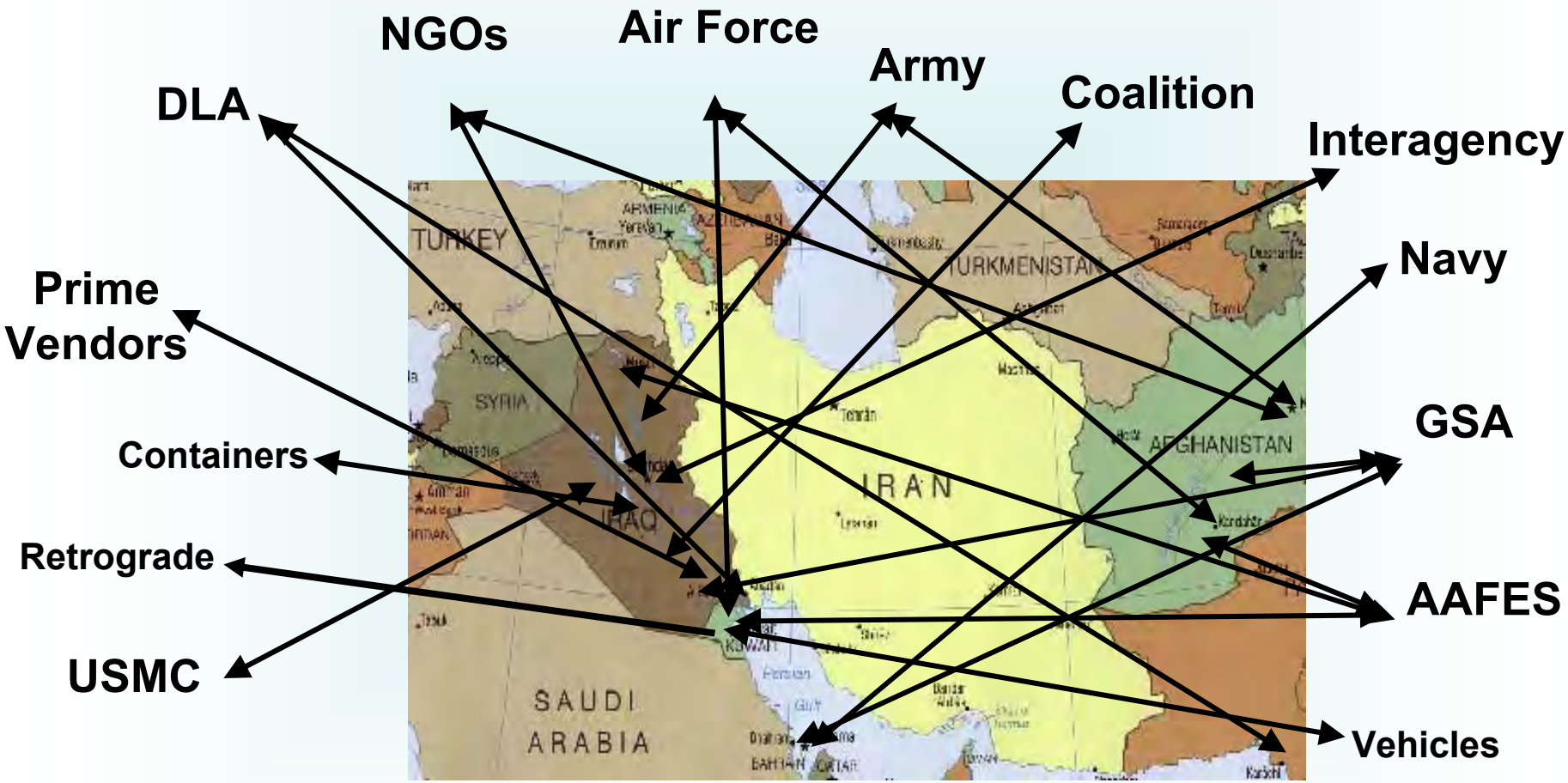
DPO Distribution Process Owner



Who's setting priorities?
Who's the receiver?

Who's directing execution?
Who's metering the flow?

The Result Is…



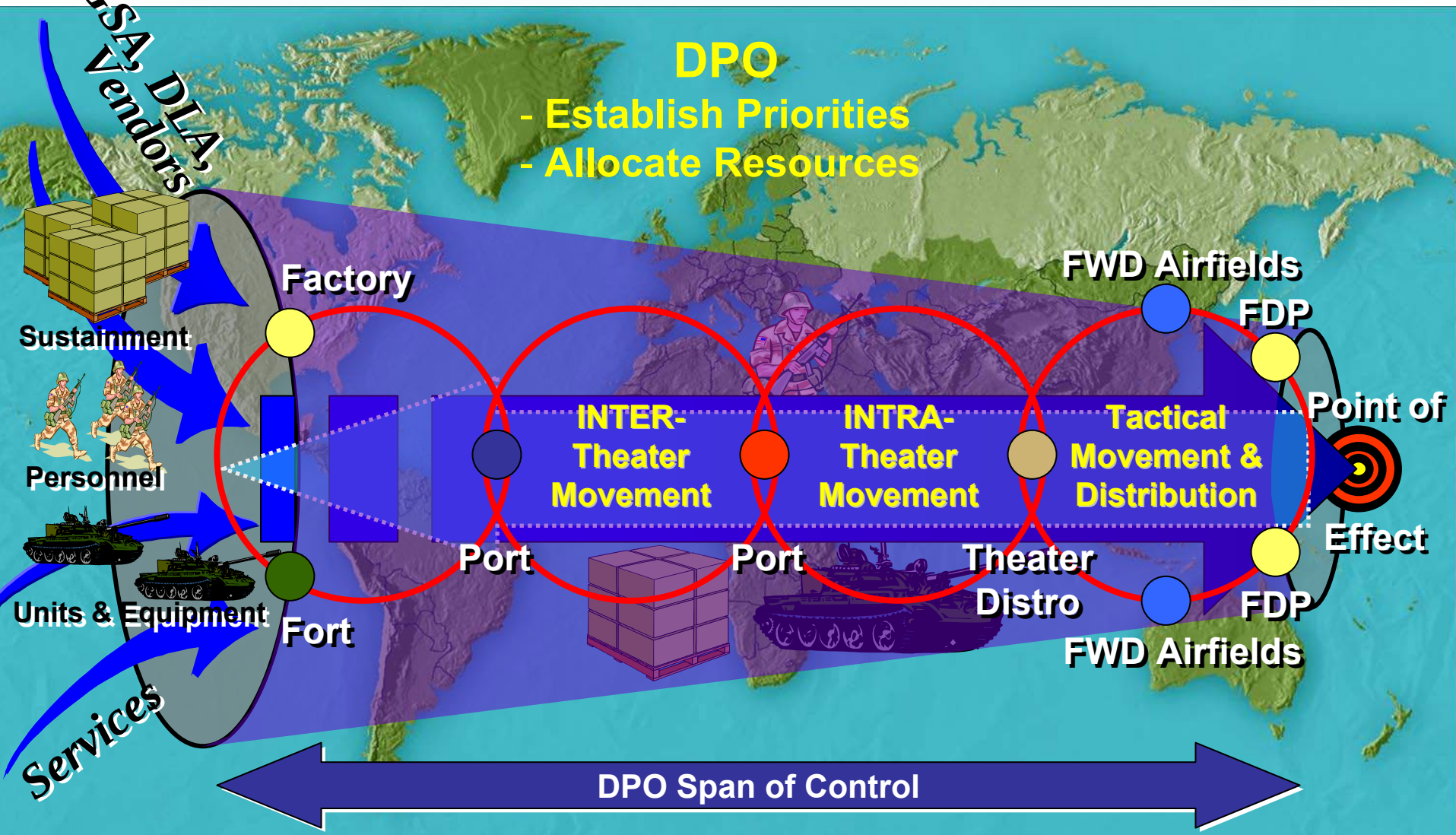
Who's setting priorities?

Who's directing execution?

Who's the receiver?

Who's metering the flow?

Distribution Process Owner
. . . *Logistics is a Team Sport!*



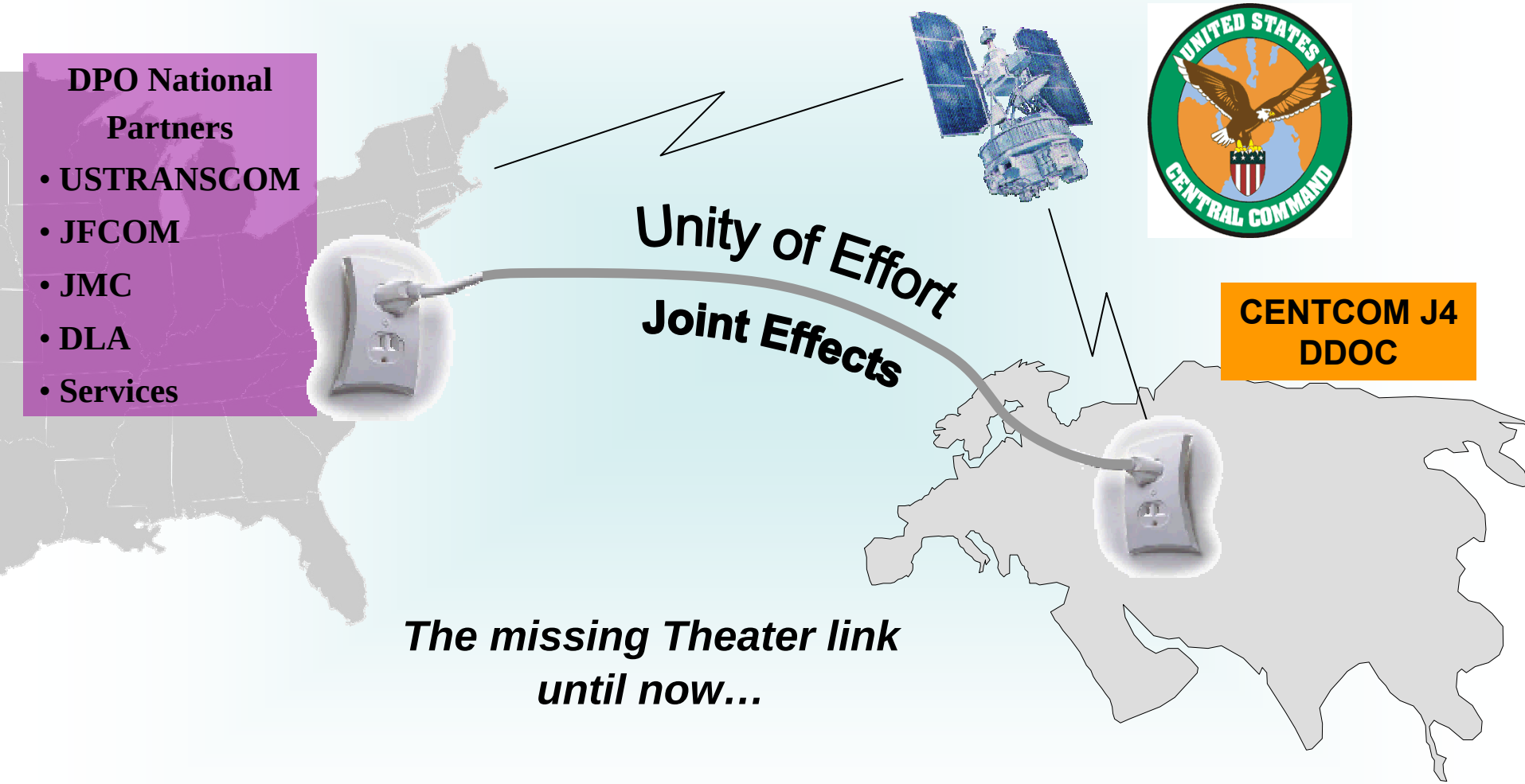
Synchronizing Performance is Key to Success

Execution Pillar Initiative

DPO Distribution Process Owner

DPO National Partners

- USTRANSCOM
- JFCOM
- JMC
- DLA
- Services



The missing Theater link until now…

Early Problem…Early Solution!



Joint Logistics Over-The-Shore (JLOTS)

JLOTS Mission

A Critical Link in the DTS

Joint Logistics Over-the-Shore (JLOTS) is a unified commander's joint employment of Army and Navy LOTS assets to deploy and sustain a force. JLOTS operations allow U.S. strategic sealift ships to discharge through inadequate or damaged ports, or over a bare beach. JLOTS watercraft can also be used to operationally reposition units and materials within a theater.

"JLOTS Vision 2010"

Thought…Is JLOTS a partial bridge to Seabasing?

- ***Force Projection/Intra-Theater Lift***
- ***Sustainment of Deployed Forces***

UNCLASSIFIED (U)

Why do we need JLOTS?

➢ Reality:

- More deep draft ships in strategic sealift fleet
- Worldwide deep draft ports remain limited in many areas
- Port denial is expected!

➢ JLOTS Offsets:

- Port Denial/Damage
- Port Draft Limitations
- Port Congestion
- Lack of Ports



Elevated Causeway System in Kuwait 2003 during OIF

80-90% of wartime cargo moves by ship
Theater port infrastructure is critical to off-loading ships

JLOTS Capabilities / Operations

- Offload cargo in-stream
  - RO/RO (wheeled/tracked vehicles)
  - LO/LO (sustainment/ammo)
  - Pipeline (POL/water)
- Delivery
  - Pier side
  - Over-the-shore



Augment an established port

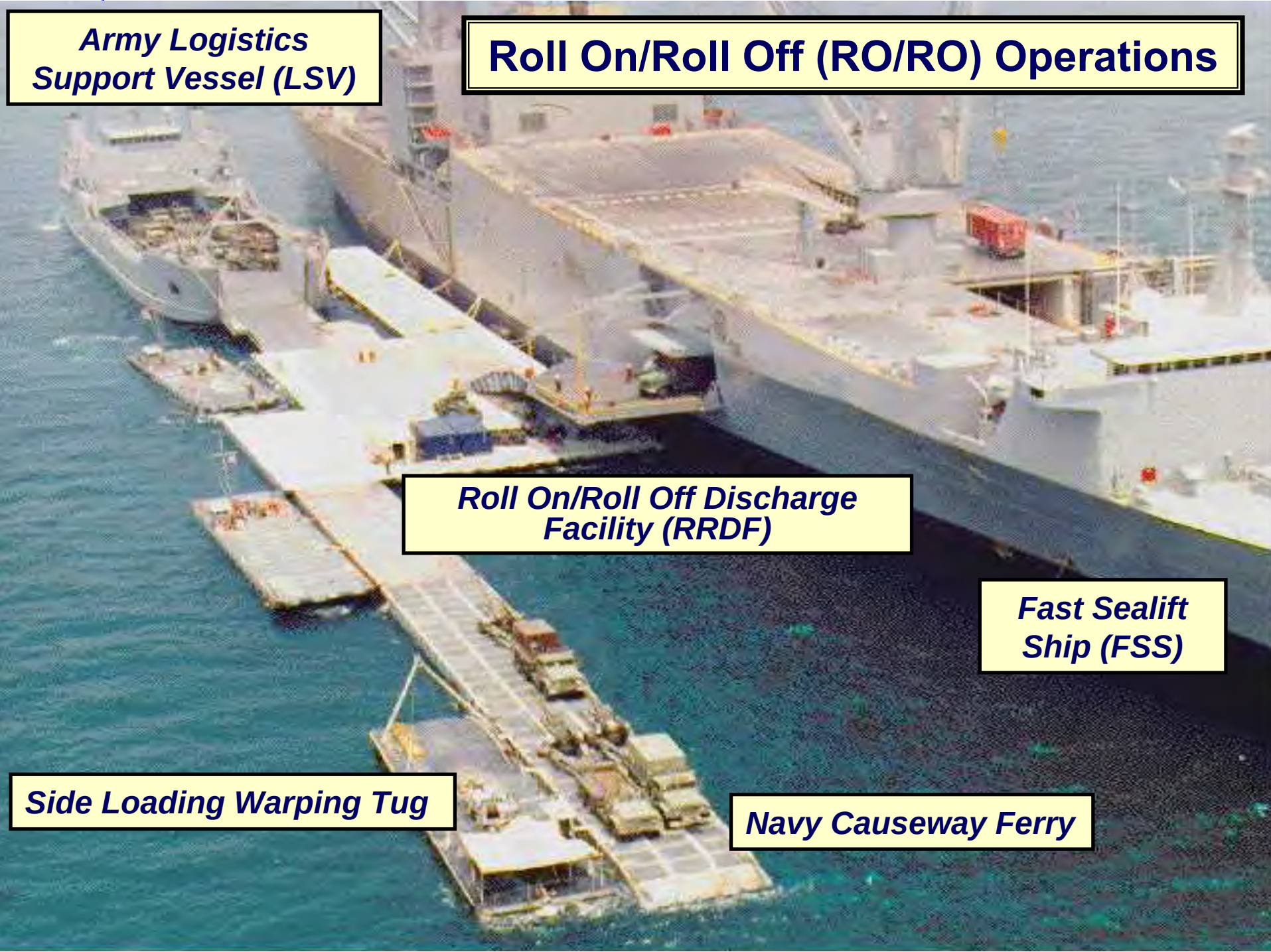


Supplement a degraded port

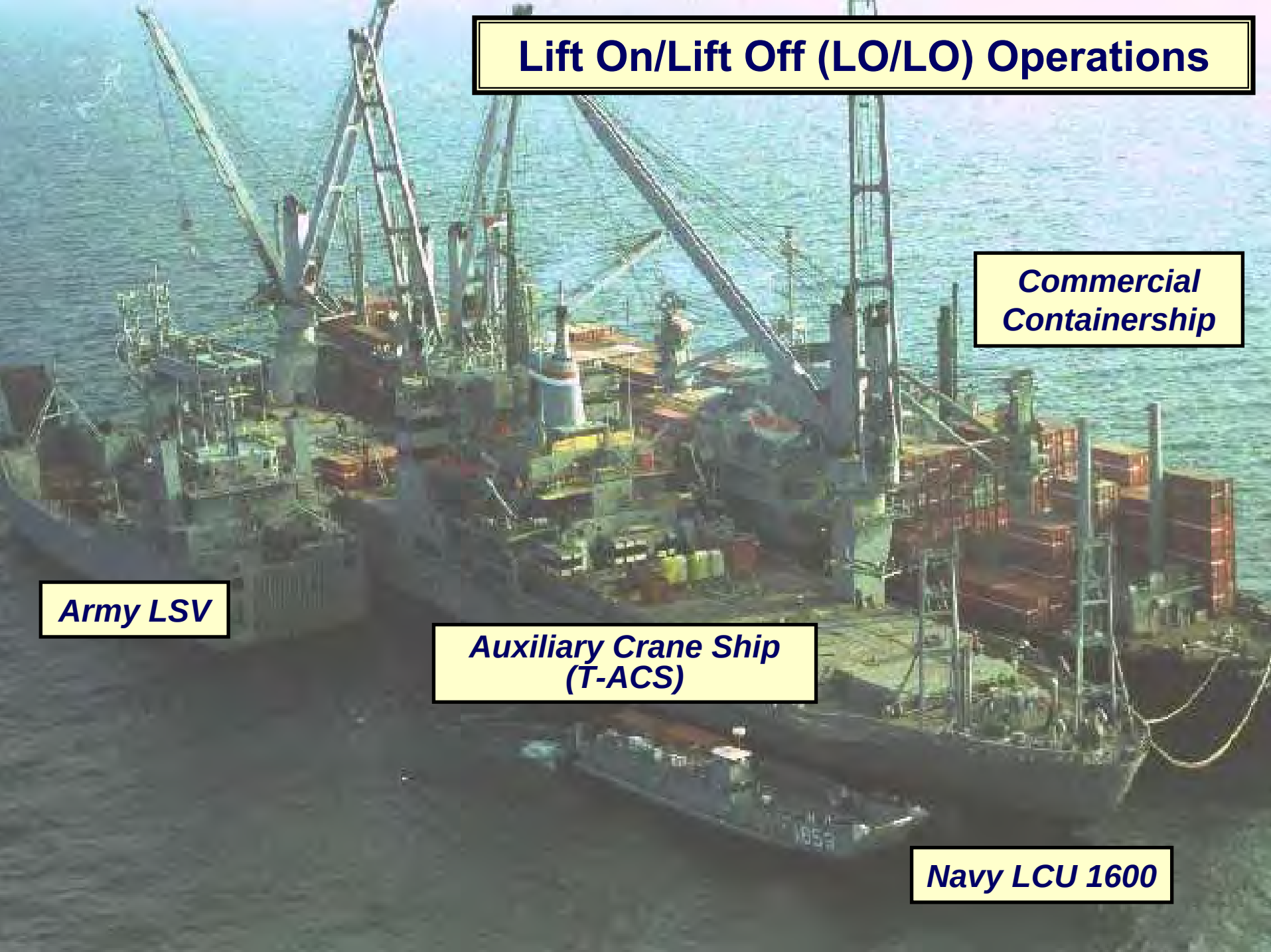


Create a port

Roll On/Roll Off (RO/RO) Operations



Lift On/Lift Off (LO/LO) Operations







Offshore Petroleum Discharge System (OPDS)

Inshore Petroleum Distribution System (IPDS)









Intra-Theater Movement
USMC High Speed Vessel





JLOTS Way Ahead

- Integration of commercial equipment into JLOTS exercises & operations
  - Significant capability available to Combatant Commanders *anywhere in the world*
- Research and develop Sea State 2+ capability (Seabasing Objective is for Sea State 3+ capability)
- Use of High Speed Vessel (HSV) technology
  - Interoperability with Army/Navy watercraft, lighterage and causeway piers
  - Test use at fixed piers & over-the-beach operations
- Transition JLOTS systems into Sea Basing initiatives

Thought…Is JLOTS a partial bridge to Seabasing?

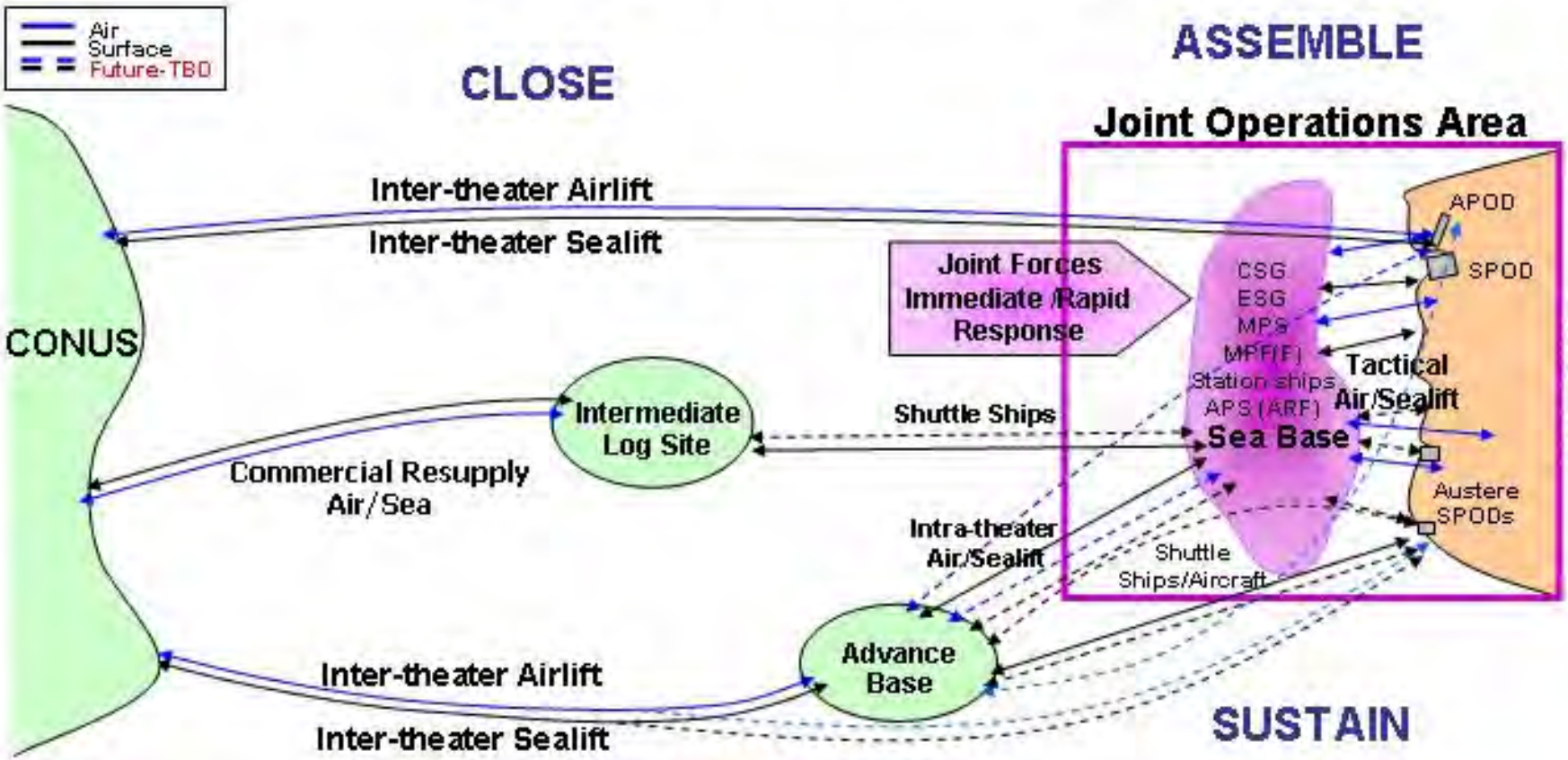
Sea Basing Concepts



- Rapid Force Closure
- Phased At-Sea Arrival & Assembly
- Selective Offload
- Integrated Naval Power Projection
- Reconstitution at Sea

Seabasing Concept

Seabasing Overarching View



Note: Map is not to scale. Notional distances from Advance Bases to JOA are 2000-2500nm based on future basing estimates.

Seabasing Strategic Access Considerations

- Requires greater joint strategic mobility rate/capacity
- Success dependent on a streamlined joint deployment process
  - Reducing joint deployment and joint operational footprint
  - Minimizing number of operational stops and transloads
  - Minimizing disassembly/assembly
  - Reducing “iron mountain” ashore
- Capabilities that reduce joint deployment-RSOI timeline
- Objective: direct delivery (load once/unload to combat)

Seabasing Considerations for USTRANSCOM

- Much of the seabasing concept depends upon USTC enablers
  - Lift, In-Transit Visibility, Total Asset Visibility, streamlined logistics
- How do seabasing concepts impact the strategic mobility triad?
- How should new intra-theater lift assets be assigned/managed?
  - Dedicated or common use? Integral to sea base?
- Seabasing depends upon robust theater airlift and sealift capability that can interface with the sea base and assist in projecting/sustaining forces from the sea base
- Should seabasing be considered during next/future MCS?
- Today, there is little or no analytical modeling capability to evaluate seabasing alternatives and their impact on TPFDD, logistics, and end-to-end distribution process
- What role should USTRANSCOM have during Seabasing Functional Solutions Analysis (FSA)? Lead or supporting? In which areas?
  - Seabasing gaps related to closing the force; i.e., common-user strategic and operational airlift, sealift, and pre-positioning options
  - Focused logistics and Joint distribution process management

Areas Requiring Synchronization

- Heavy-lift Aircraft (transport from sea base inland)
- Advanced cargo handling capabilities/cargo transfer at Sea
- Ships designed to incorporate new requirements of a sea base system-of-systems
- Transportation networks/hubs & Logistic nodes
- Interfaces: various ship and aircraft types
- Intermodal Containerization
- High Speed Vessels & High Speed Ships
- High Speed Lighterage
- Inter-theater & Intra-Theater Links

… USTC, a leading partner in Seabasing Transformation.

Bottom Line – Support the Warfighter



Get the warfighter to the fight



Sustain the warfighter during the fight



Bring the Warfighter home





We move America's military might…. and we are stepping out smartly!

Questions?



Program Executive Office

SHIPS

We Are Ships
From Cradle to Grave

NDIA 10th Annual Expeditionary Warfare Conference:

Ship Acquisition

Presented by RADM Charles Hamilton

26 October 2005






Ship Acquisition

- Issues, challenges and opportunities in the areas of platforms, sensors, weapon systems, automation and reduced manning in order to provide the warfighters the most “bang for the buck”
- Achieved through:
  - Technology Maturation Model: DD(X)
  - Accelerated Acquisition Model: LCS
  - Balanced Resources / Requirements Model: MPF(F)

DD(X) Engineering Development Models



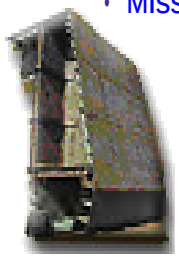
Infrared Mockups (IR)
- At-sea testing complete

Integrated Composite Deckhouse & Apertures (IDHA)
- RCS testing complete
- Co-site testing complete

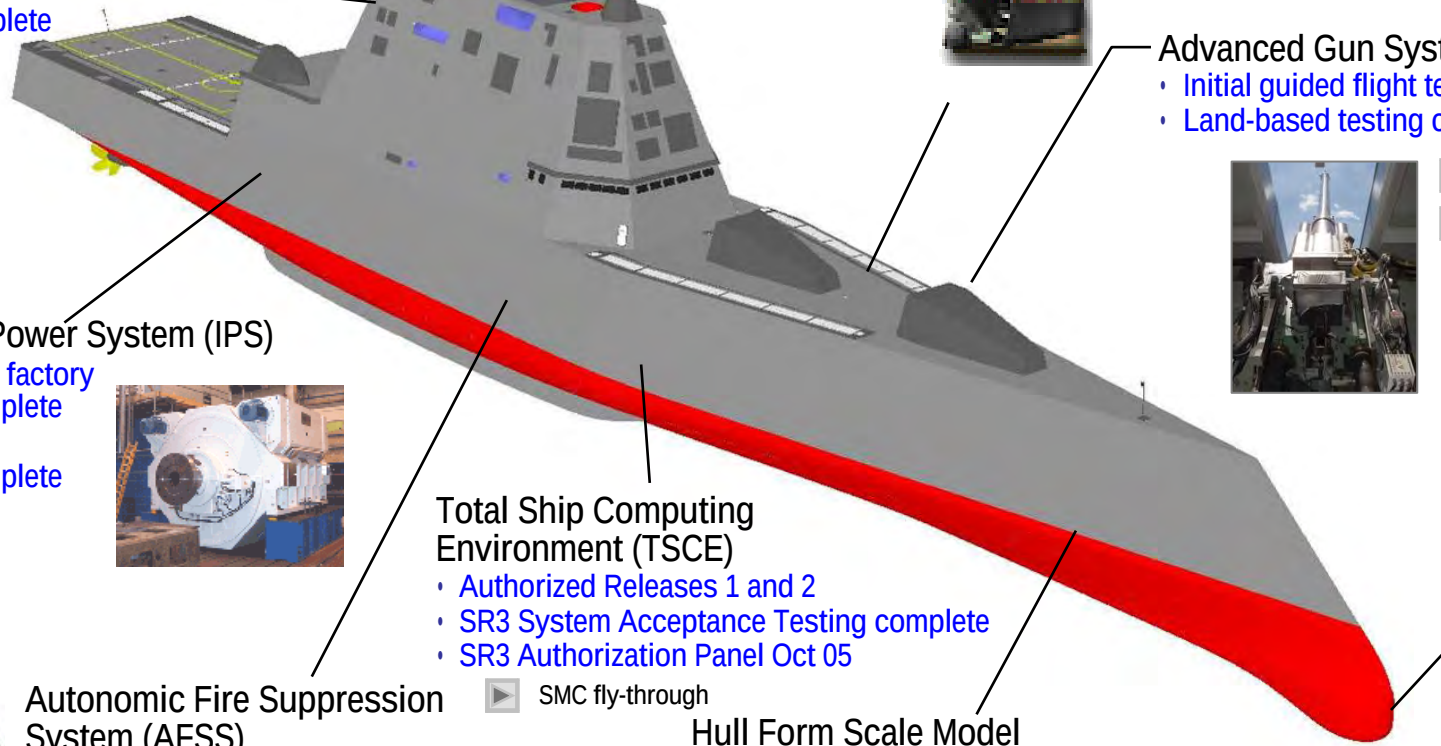


Peripheral Vertical Launch System (PVLS)
- Two detonation tests conducted
- Missile restrained firing testing complete

MCDE-2



Dual Band Radar (DBR)
- MFR land-based testing complete



Advanced Gun System (AGS)
- Initial guided flight testing complete
- Land-based testing complete

Dugway 56

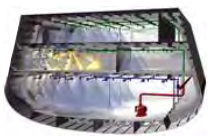
LRLAP GF- 6

Integrated Power System (IPS)
- Component factory testing complete
- Land-based testing complete

Total Ship Computing Environment (TSCE)
- Authorized Releases 1 and 2
- SR3 System Acceptance Testing complete
- SR3 Authorization Panel Oct 05

SMC fly-through





Autonomic Fire Suppression System (AFSS)
- At-sea weapons effect fire suppression demonstration

Peterson Shadwell

Hull Form Scale Model
- Model testing complete
- CDR complete

¼ Scale Hydro Test

Integrated Undersea Warfare (IUSW)
- At-sea mine avoidance testing complete
- Automation testing complete

Technology Readiness Levels

Engineering Development Model (EDM)	MS B TRL	TRL at Ship Installation
1. Advanced Gun System and LRLAP	6	6
2. Integrated Power System	6	6
3. Dual Band Radar Suite – MFR/VSR	6 / 5	7 / 6
4. Total Ship Computing Environment	5	6
5. Peripheral Vertical Launching System / Advanced Vertical Launching System	6 / 6	7 / 6
6. Integrated Deckhouse and Apertures	5	6
7. Autonomic Fire Suppression System	6	7
8. Infrared Signature Mockups	6	6
9. Hull Form	6	6
10. Integrated Undersea Warfare System	7	7

TRLs Continue to Mature Past MSB – Supporting Ship Installation

Littoral Combat Ship Seaframes

Lockheed Martin

Gibbs & Cox
Marinette Marine
Bollinger Shipyards





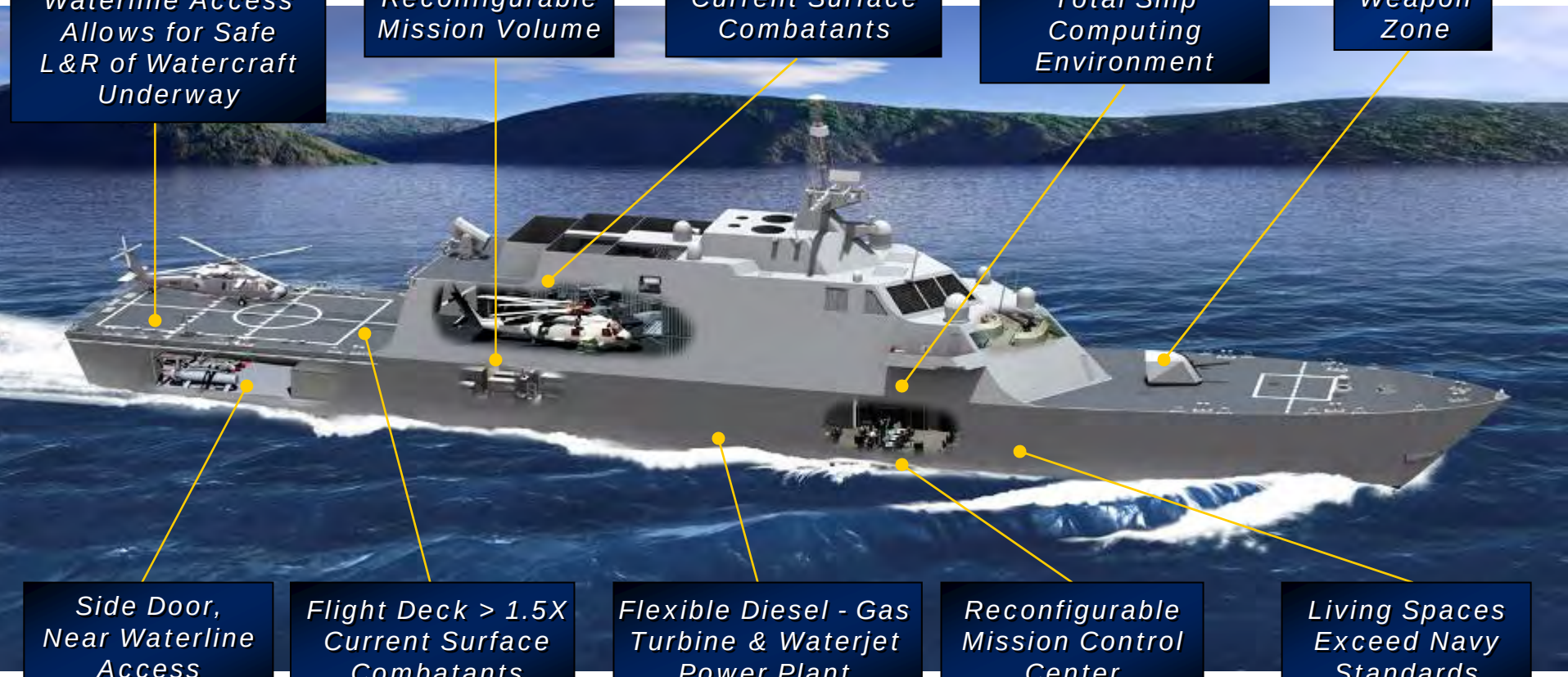
General Dynamics

Bath Iron Works
Austal USA
BAE Systems
MAPC

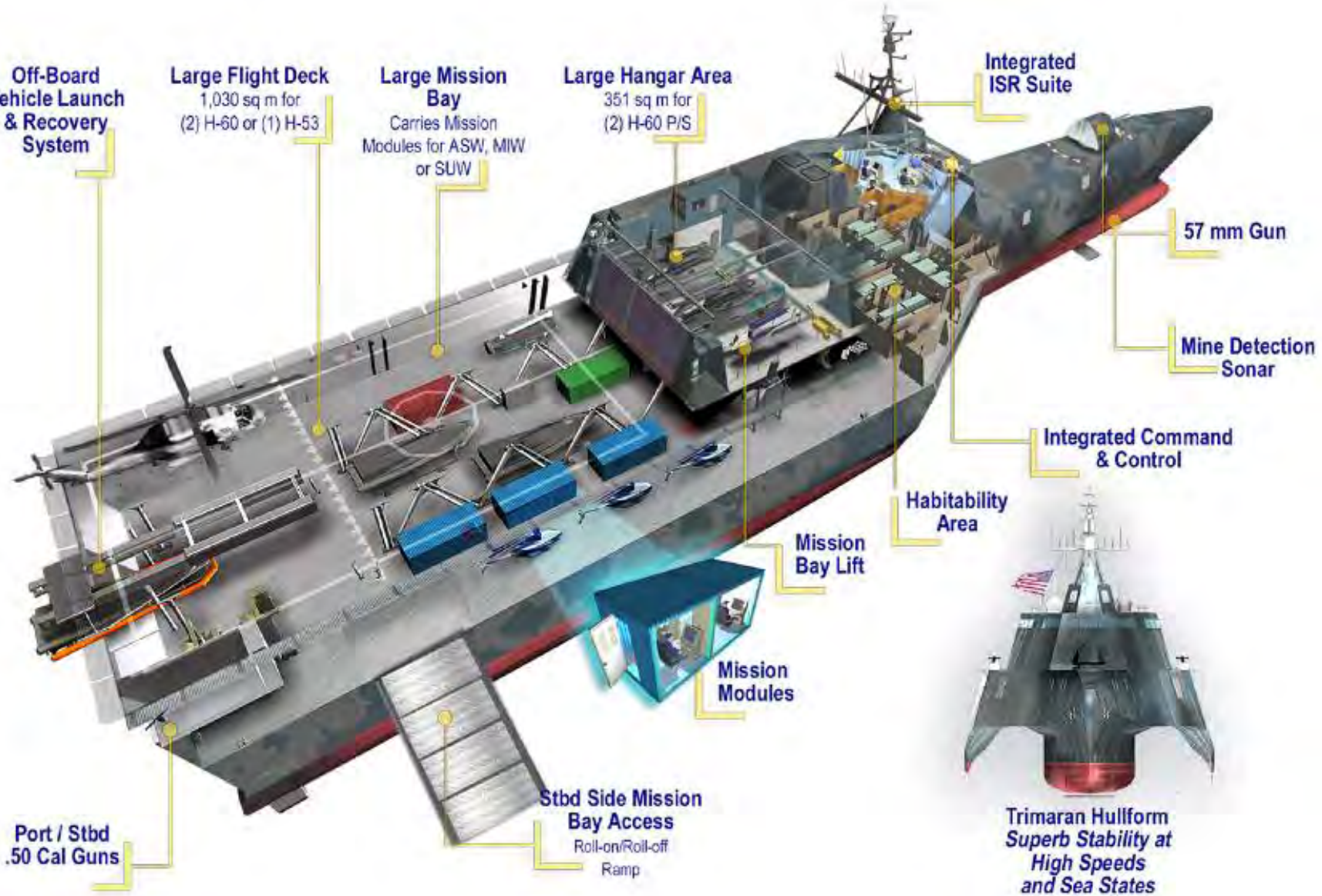




Semi-Planing Monohull



Trimaran Hull




GAFFEY 20
9405
000. 01. 09/ 10. 04. 2005




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09.20.2005 00:17


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5320
09.20.2005 00:06




09 20 2005 00:02

LCS Today

- First Ship Under Construction
  - Delivery December 2006
- Second Ship Final Design Approved
  - GD Detail Design and Construction contract award, 14 October 2005
  - On Track for October 2005 Construction Start
  - Lay Keel this January in Mobile AL
- LCS Interface Control Document (ICD) Complete
- First USN Open Architecture Combat System Under Construction (x2)
- PRE-COM in place & first 40 Sailors in training
  - First application of Sea Warrior principles
  - At sea on HSV-2 and soon on SEAFIGHTER
- First Early Operational Assessment Complete (LM Design)

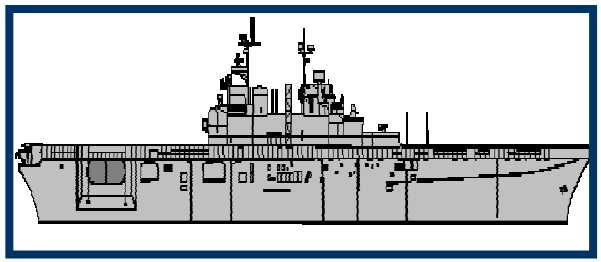
Winner, FY 2004 DON Competition and Procurement Excellence Award



Winner, PEO C4I Lightning Bolt Award

Every Milestone Met On Schedule

Maritime Prepositioning Force (Future)













Squadron Threshold Requirements

- Preposition the 2015 MEB (1 Air and 2 Surface Battalions [selective offload])
- Close a 2015 MEB in 10 - 14 days
- At Sea Arrival, Assembly in 24-72 Hours
- Employ one Surface Battalion and one Vertical Battalion in 8 - 10 hours
- Provide accommodations and aircraft/vehicle maintenance capability (O level/selected I level) for a 2015 MEB
- Sustain the forces ashore from the Sea Base
- Provide Level II (resuscitative surgery) medical support
- Accommodate and operate organic surface connectors
- Conduct external operations in Sea State 3 (threshold)/4 (objective)
- Provide MEB C2

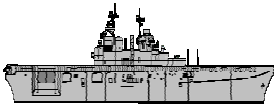
2015 MEB assumptions	2015 R/W/T/R MEB ACE	Required Squadron Capacity
11,912 Accommodations	48 MV-22	88K RO/RO m^2
799 HMMWVs	20 CH-53(X)	85K Cargo m^{3-}
106 EFVs	18 AH-1	35K POL metric ton
335 MTVRs	9 UH-1	197 CH 46 Equiv
30 M1A1 Tanks	2 H-60/Aviation Ship	20 A/C operating spots
18 LW 155 Howitzers	8 UAVs	1226 Trailers and others

MPF(F) Decision – Hybrid Legacy Option

- Meets the basic requirements – preferred option by USMC/USN leaders
- Flexible mix of ships and capabilities, transition opportunities
  - Provides opportunities for Joint applications
- MPF(F) Squadron selected has both low cost and schedule risk overall:
  - One new design – fits with industrial base capacity
  - Two hot production lines
    - Program benefits from non recurring engineering already accomplished and learning curve (LHA(R) and T-AKE)
    - Return costs available
  - Three existing designs (LHD, T-AKE and LMSR)
    - Mitigates cost for non-recurring engineering
    - Return costs available
  - Minimizes workload disruption in shipyards

MPF(F) Squadron

LHA(R) w/MEB C2



2

- Lightship Displacement: 30,862 MT
- Landing Spots: 9/ship
- Personnel: 3000/ship
- Ship Speed: 22 kts

LHD w Aviation C2



1

- Lightship Displacement: 28,540 MT
- Landing Spots: 9/ship
- Personnel: 3000/ship
- Ship Speed: 22 kts

LMSR



3

- Lightship Displacement: 36,289 MT
- Landing Spots: 2/ship
- Personnel: 345/ship (+500 surge)
- Ship Speed 24 kts

T-AKE



3

- Lightship Displacement: 25,700 MT
- Landing Spots: 2/ship
- Personnel: 194/ship
- Ship Speed 20 kts

Legacy Dense Pack



2

- Lightship Displacement: 19,900 MT
- Landing Spots: 1/ship
- Personnel: 62/ship
- Ship Speed 18 kts

- Squadron is 14 ships
- 6 hulls: 2 hot production lines, 1 new design
- Full MEB (1 vertical battalion and 2 surface battalions) are selectively offloadable
  - Personnel for second surface battalion are on Sea Base
- 11 of 14 ships built to commercial survivability standards (minor enhancements), 3 ships to military survivability standards
- MLP required for surface interface
- Meets delivery timeline for vertical and surface battalions
- Significant Industrial Base stability

MLP(w/Troops)



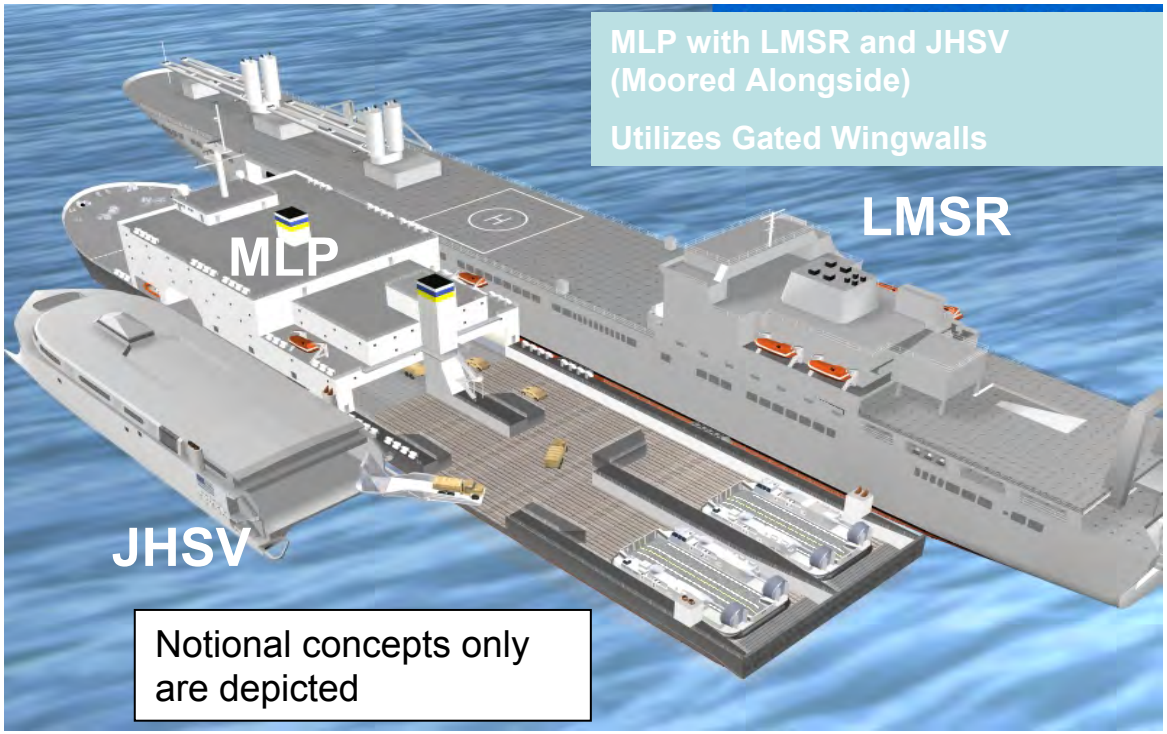
3

- Light Ship Displacement: 28,423 MT
- Landing Spots: VERTREP
- Personnel: 1300/ship
- Ship Speed 20 kts

Mobile Landing Platform (MLP)

- **MLP provides independent surface connector interface**
- **Joint: Potential universal interface for Navy and Army ships and small craft**





- **Based on commercial FLO FLO technology**
- **Sized to accommodate 6 LCAC equivalents**
- **Accommodations for 2 BLTs and equipment for 1**
- **Could also transport causeway sections, barges, containers, etc.**
- **COMPETITIVE OPPORTUNITY**

MLP Concept Demo Sept 05



LMSR USNS Watkins and FLO/FLO Ship MS1 rafted and underway in calm water. The Watkins sideport ramp is down on the MS1 and ready for vehicle operations.

USNS Watkins (LMSR) with her sideport ramp deployed onto the deck of the Mighty Servant I.

The Kalmar Container Handling Truck is driving down the ramp to the MS1 deck. The orange barrier walls on MS1 were installed to guide LCACs on deck in later exercises.





Future Ships Summary

- DD(X) is moving forward
  - Meets future Marine Corps surface fire requirements
  - Meets reduced signature requirements for sustained littoral operation
  - Flag-level CDR complete
  - Four LOE Contracts awarded
  - Milestone B on track
- LCS is moving forward
  - Lockheed Martin seaframe under construction; ship delivery scheduled late 2006, deployment 2007
  - General Dynamics construction begins October 2005; ship delivery scheduled 2007, deployment 2008
  - Represents speed, modularity, flexibility and rapid acquisition
- MPF(F) is moving forward
  - Integrates legacy resources with new acquisition to meet warfighter requirements
  - Flexible solution with low cost and limited design risk

Questions?



Spiral Development in Wartime

LtCol Paul Hastert

The Problem

- Can anyone tell me what you just saw?
- Machines understand coordinates – Humans understand maps and imagery
- The “Soda Straw” effect – Great view of the target, no idea what’s off to the side
- Profound need for Situational Awareness (SA) tool to help understand where the heck Predator is, and what the heck they’re doing

Predator Data

The Predator You See…



The Predator You Don't

Ta+3637444To-11528023Tw891Sr3.714.99Se-22.34Fv1.71Sl11014Sa+3639111So-11531557Sn2Cd20000823Ct175544Ir-0.95Ip-0.31Ih173.38Ic0Mn23Md0Mt0Cl0Pc0Iv0

Ta+385To-11536024Tw8983Sr5.47Sp218.64Se-14.95Fv11.55Sl11024Sa+3639065So-11531546Sn2Cd20000823Ct175548Ip-0.33Ih173.73Ic0Mn23Md0Mt0Cl0Pc0Iv0

Ta+3634595To-11536021Tw85.43Sp218.99Se-15v11.55Sl11028S39029So-11531539Sn2Cd20000823Ct175550Ir-0.34Ip-0.58Ih173.50Ic0Mn23Md0Pc0Iv0

Ta+3634577To-11536010Tw8r5.40Sp24Se-15.155Sl11033638582So-11531529Sn2Cd20000823Ct175554Ir-0.37Ip-0.87Ih173.66Ic0Mn23Md0Mt0Cl0Pc0Iv0

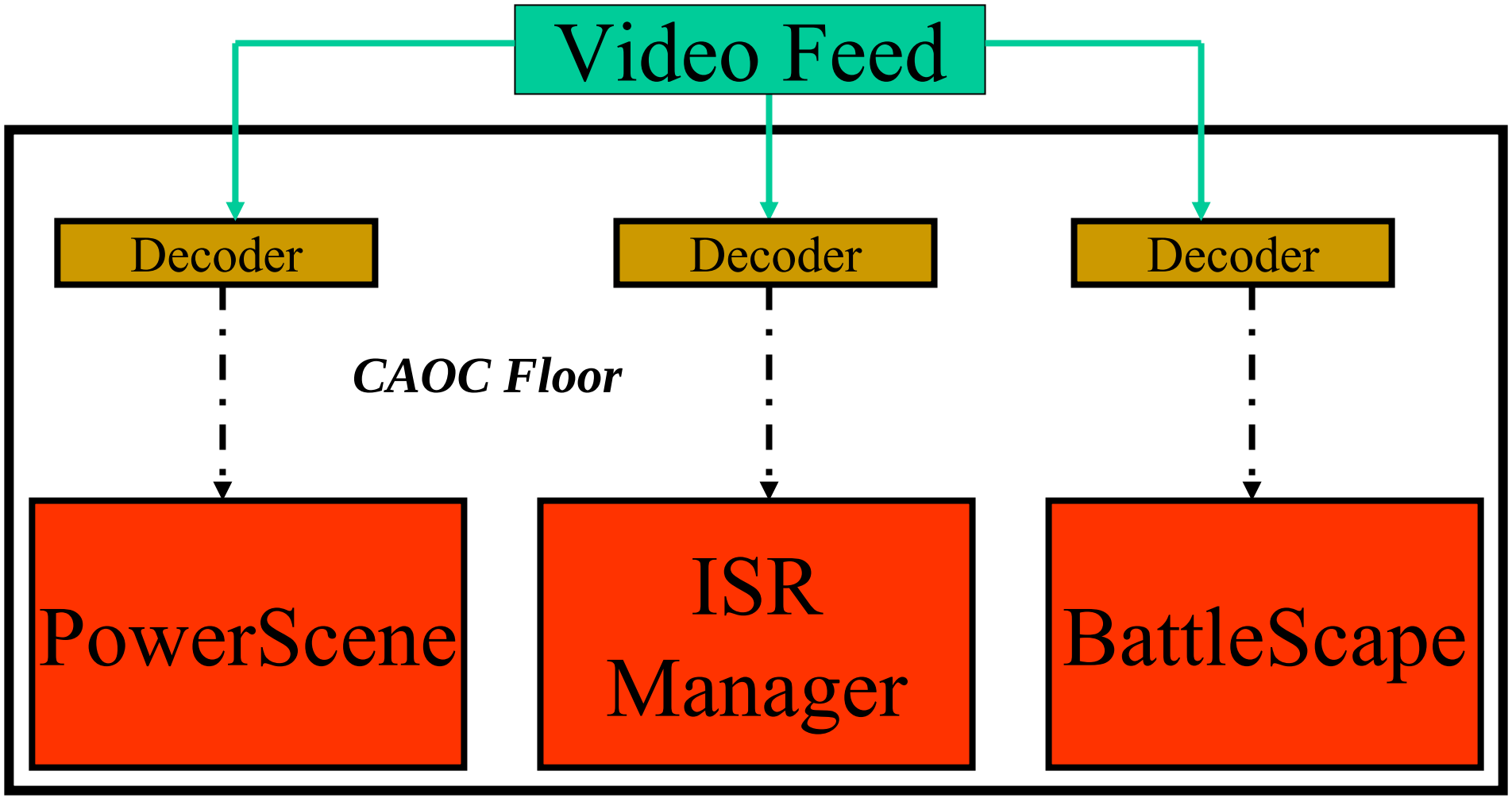
ESD

(Exploitation Support Data)

Exploitation Support Data

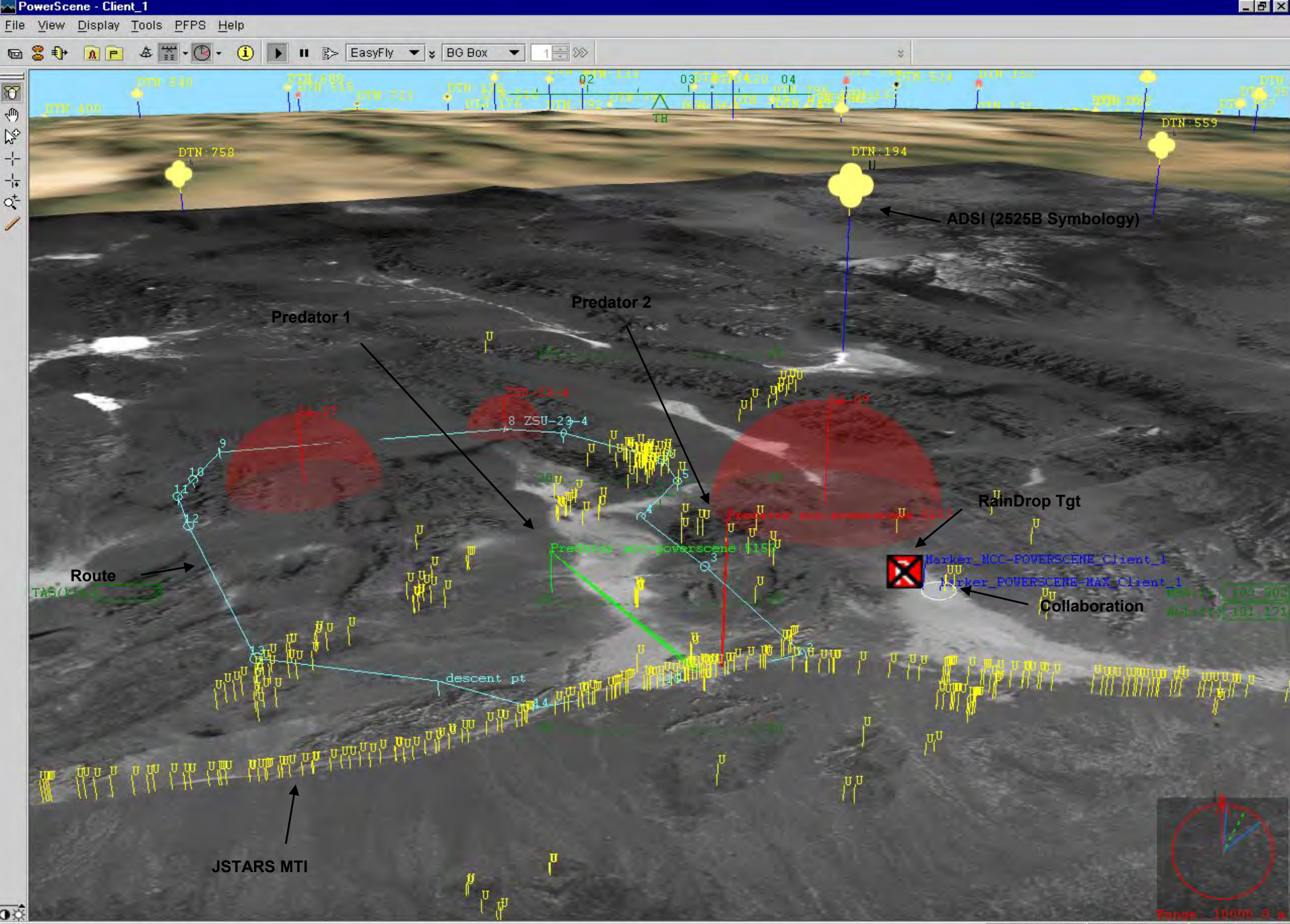
- Developed “on the back of a napkin” during Operation Allied Force (Kosovo)
- Encodes aircraft and Sensor Point of Interest (SPI) coords, elevation, Field of View (FOV) etc.
- Transmitted at low data rate embedded in the NTSC “teletext” field; teletext rides in the blanking interval along with closed captioning

Data Architecture - 2001



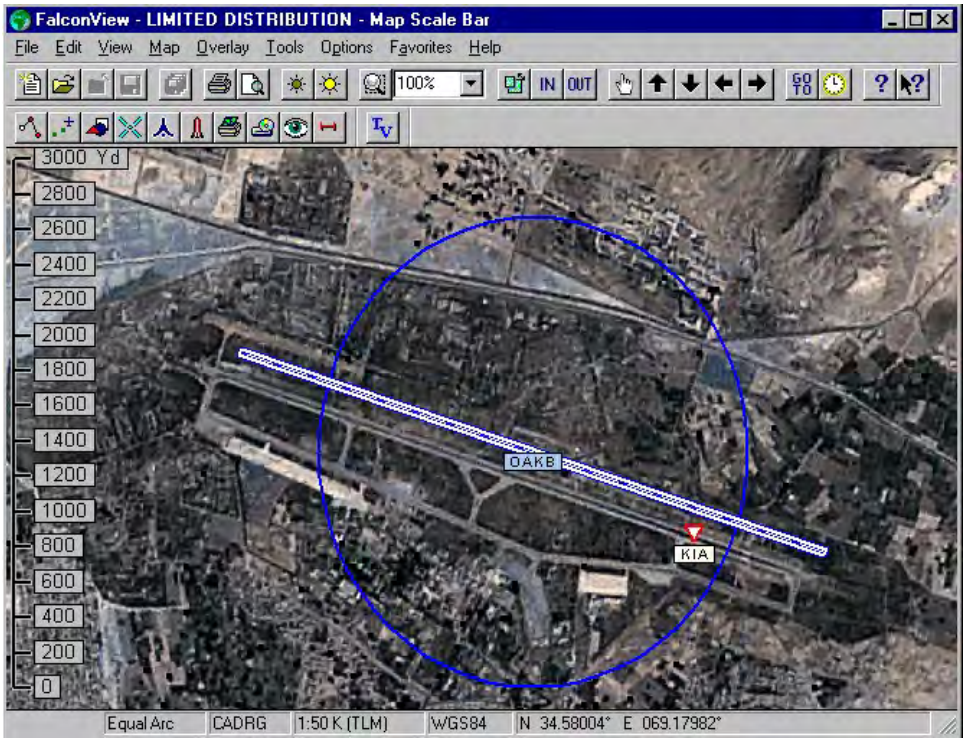
Data Architecture 2001

- "Stovepipe" decoding, individual decoders for each individual computer displaying position
- One or two decoders – no ability to display any more Predators than that
- Decoders not secured – flashing lights and little buttons lead to "little fingers" screwing things up
- Predator position only displayed on the "Machine in the corner" – information is not in front of the people who need it in a tool that they know how to use


PowerScene - Client_1
File View Display Tools PFPS Help
EasyFly
BG Box
DTN:758
DTN:194
DTN:559
ADSI (2525B Symbology)
Predator 1
Predator 2
RainDrop Tgt
Route
Collaboration
JSTARS MTI
descent pt
Marker_MCC-POWERSCENE_Client_1
Marker_POWERSCENE-MAX_Client_1
N36°07'31.793"
W115°58'52.365"
103802(ft)

Spiral 0 – "Predator View"

- Specialized version of PowerScene
- 3D view of battlefield using imagery draped on top of terrain
- Fails to answer fundamental questions: "Where's the Predator? What's it looking at?"
- Unfamiliar software, heavy "man in the loop"
- Stovepipe solution – Predator position displayed on one or two PC's in the CAOC



22,000 copies across all four services and 25 Allied Nations. The de facto "Common Operating Picture"

FalconView "GPS" Interface

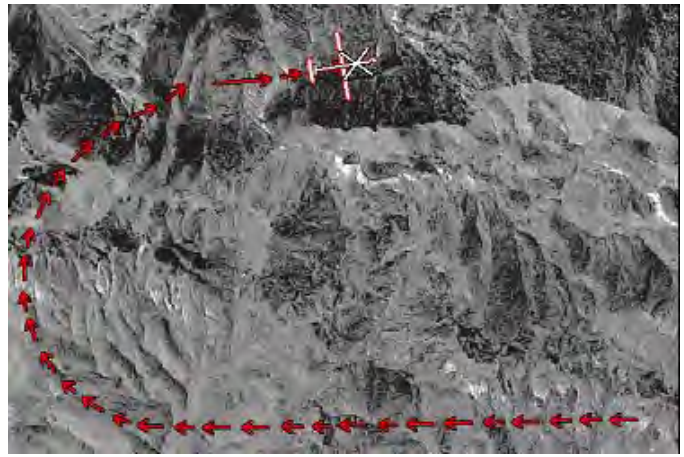
- FalconView has always had ability to display standard GPS feed as moving map
- FalconView 3.2 added PLGR feed and broke out feeds into separate dynamic link libraries
- New ability to add additional "GPS" types to already fielded versions of FalconView
- AFCSO initiative to add feed to FalconView to act as 2D companion to 3D PowerScene

Spiral 1 – July 2002

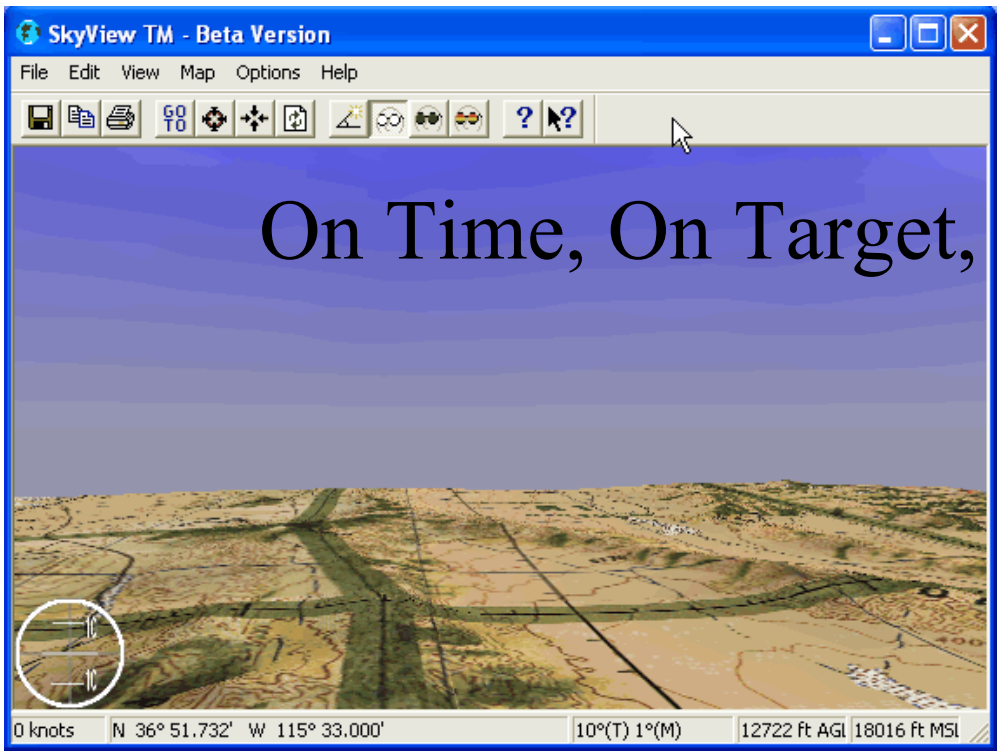
- First connection between Predator ESD and FalconView
- Uses existing GPS feed mechanism/interface
- Ability to display a single Position (aircraft or SPI) from a single Predator

Slides From July 2002

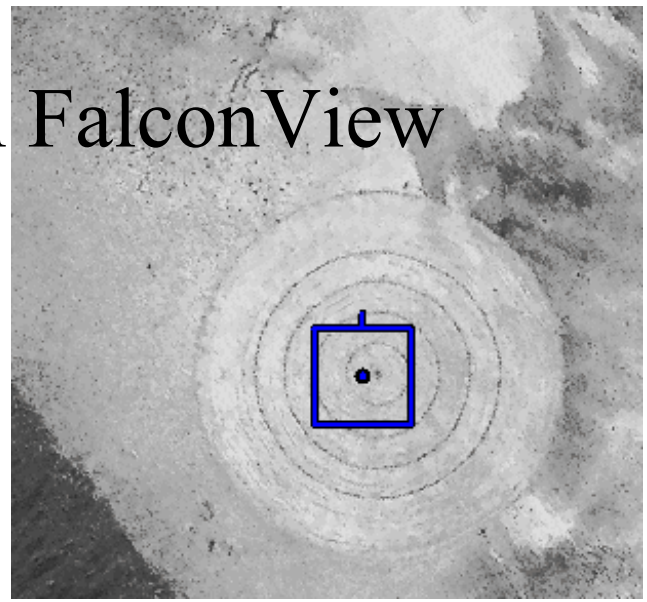




Predator Feed for FalconView



On Time, On Target, On FalconView

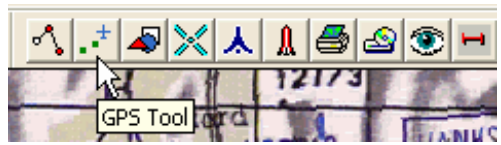


What is the Predator Feed?

- Installable dll file (64kb) that works with FalconView 3.2 (or greater)
- Uses existing Moving Map Functionality
- Follow Sensor FOV Centerpoint or UAV Location
- Uses “ESD” Predator Position Feed to Serial Port provided by data recovery device to pull data from closed captions

How Do I start the Feed?

- Start FalconView GPS Tool

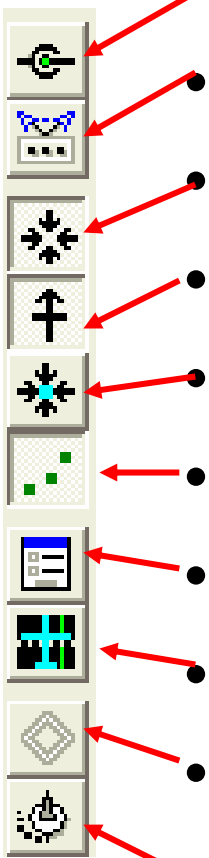


- Click Connect Button



- Or…Just press “CTRL-Q”and FalconView will do everything

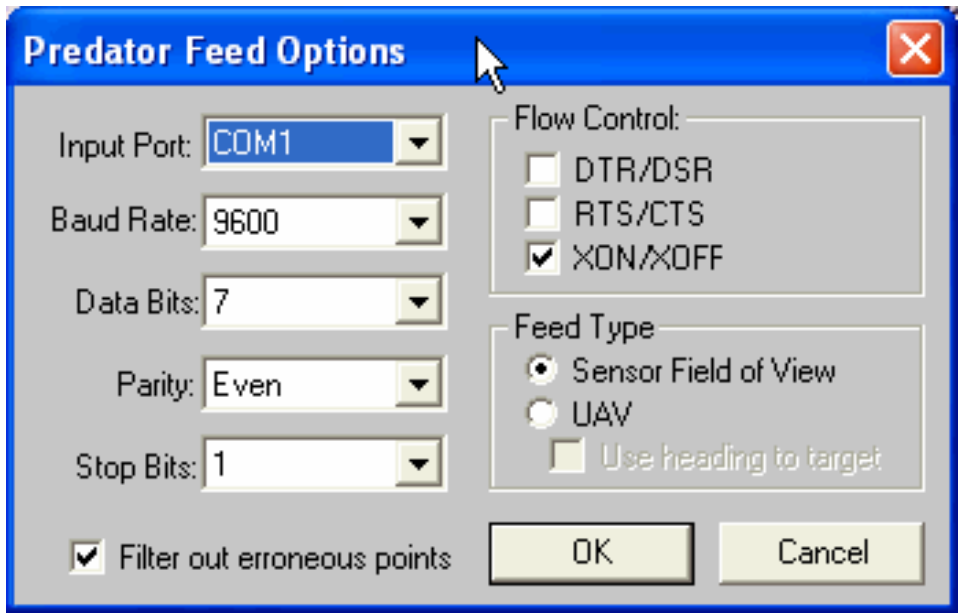
Moving Map Toolbar



- Connect/Disconnect
- Predator Feed Options
- Auto Center on Predator Position
- Orient chart to match UAV Course / FOV Orientation
- Smooth Scrolling
- Turn On/Off Trail Points (breadcrumbs)
- GPS Options
- Course Displacement Indicator (CDI)
- Display Range and Bearing
- Coast Track to dead recon position of Boogie

Predator Options Dialog Window

- If the feed works once then the only thing you should change is the “Feed Type” to switch between the UAV and the Sensor FOV!

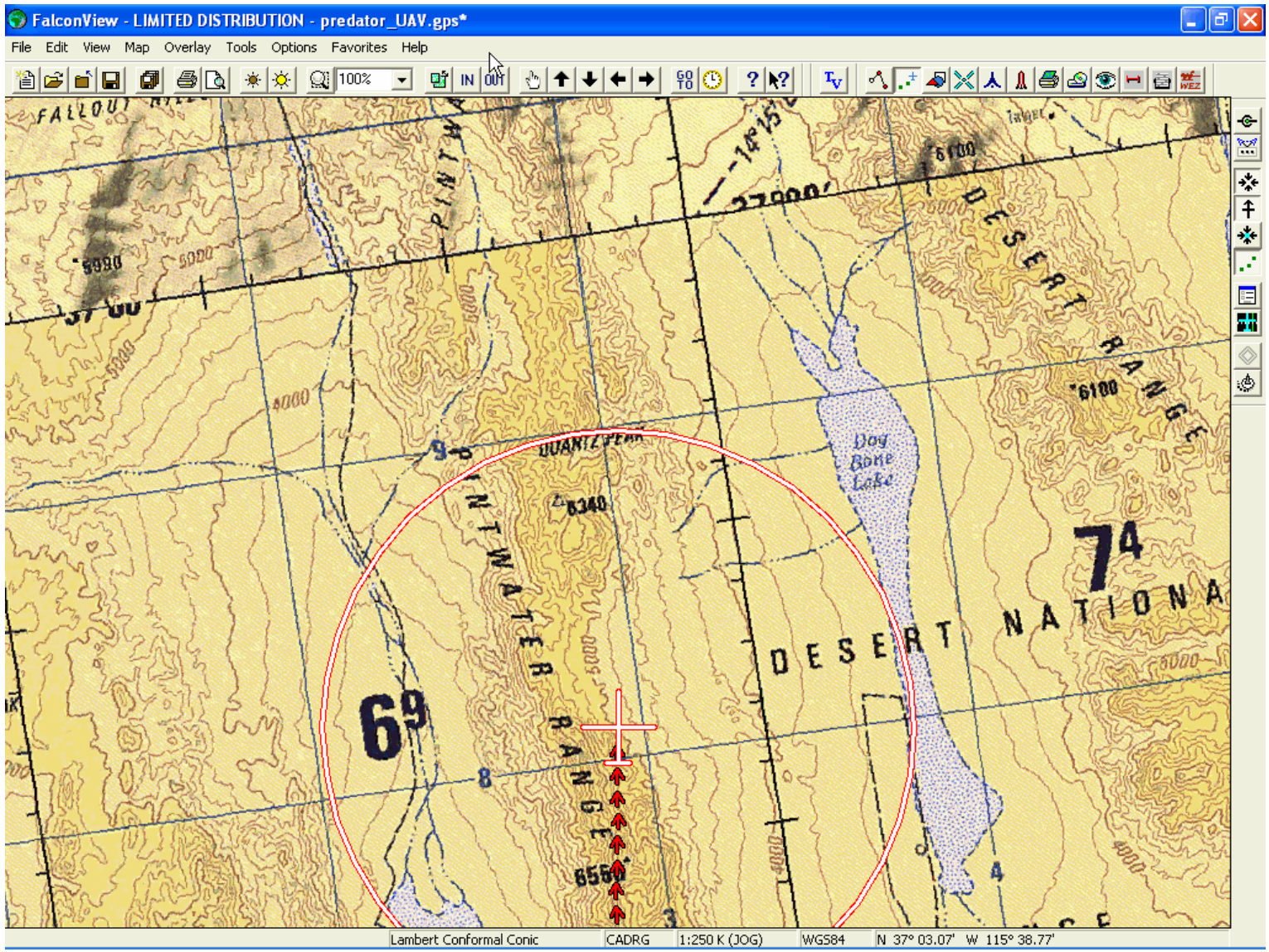


Note: This is the only piece that is “Predator Unique”. Everything else is built into FalconView 3.2 and paid for by someone else

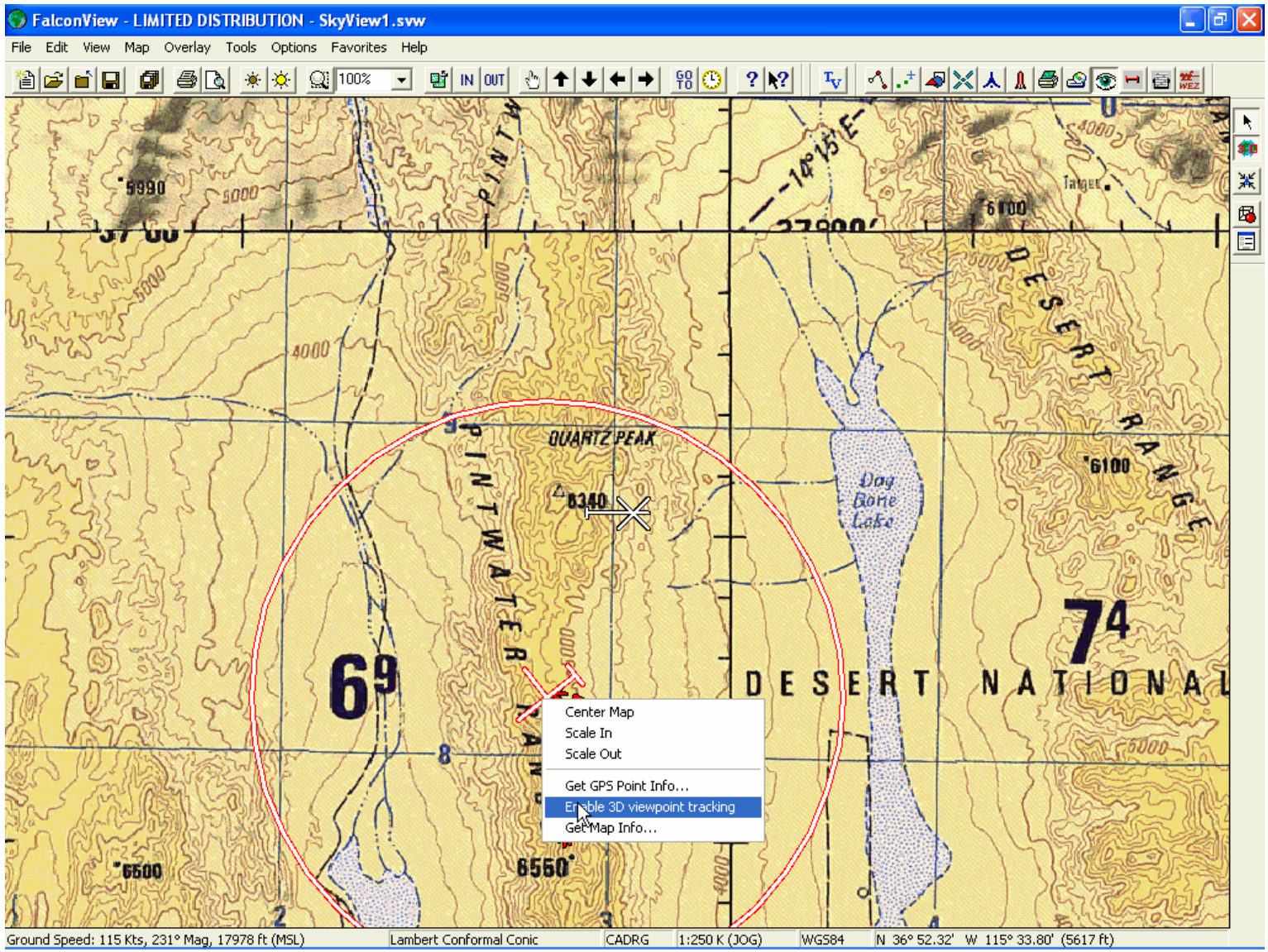
Sensor FOV on 5M CIB



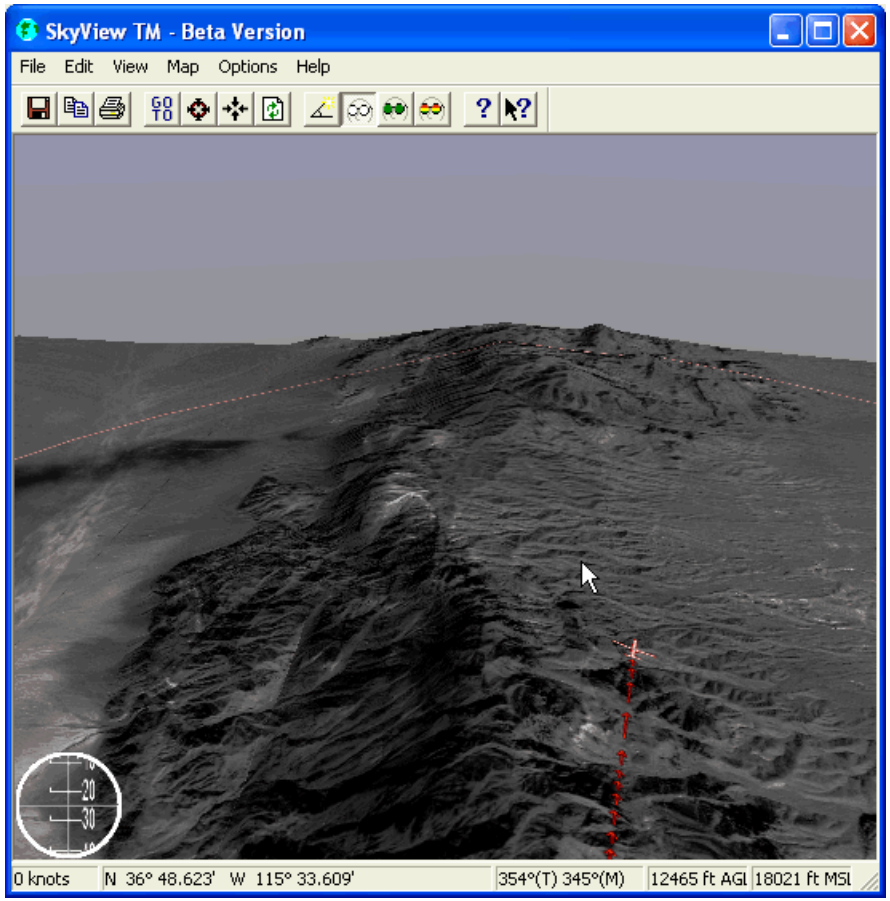
Predator Position on JOG

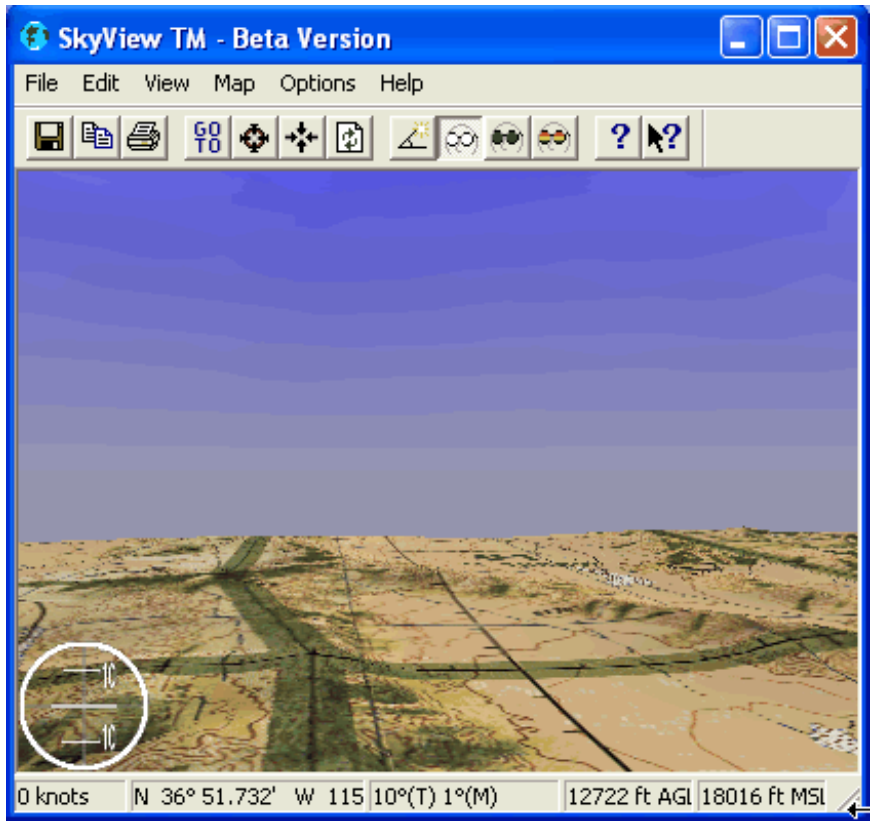


Tying SkyView to Predator



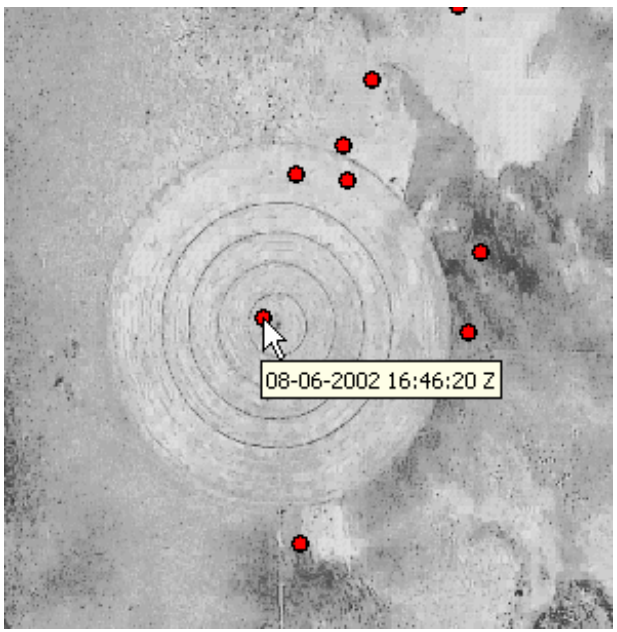
Predator/SkyView

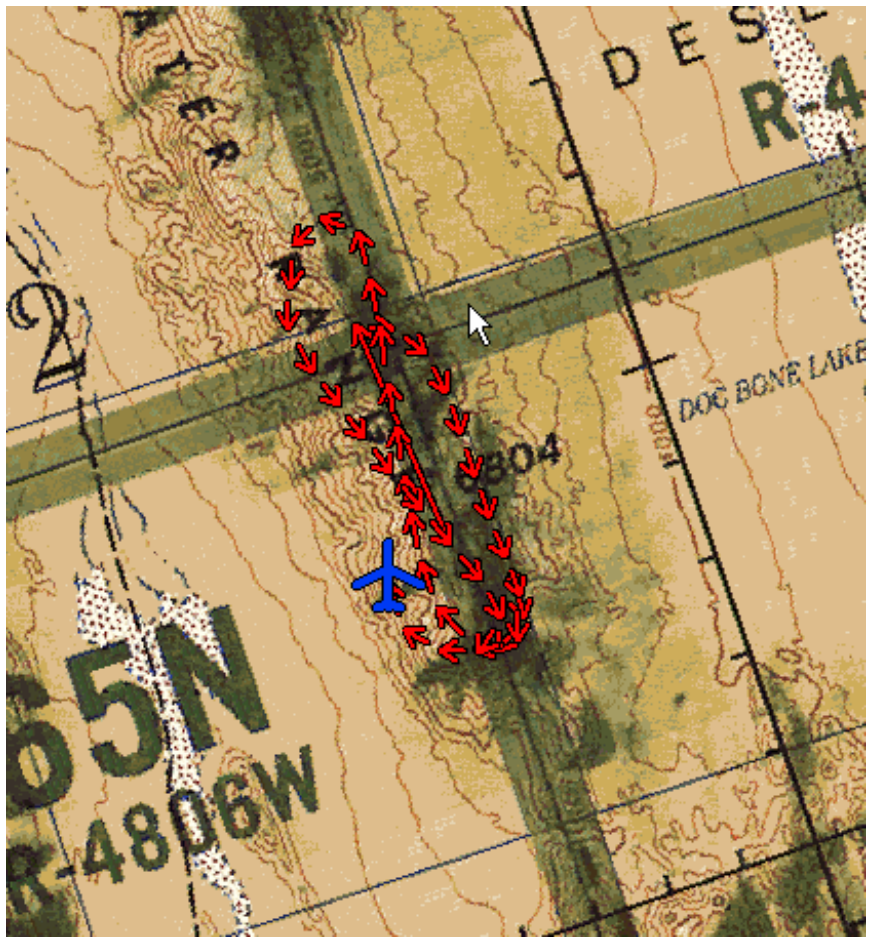




Recording Missions

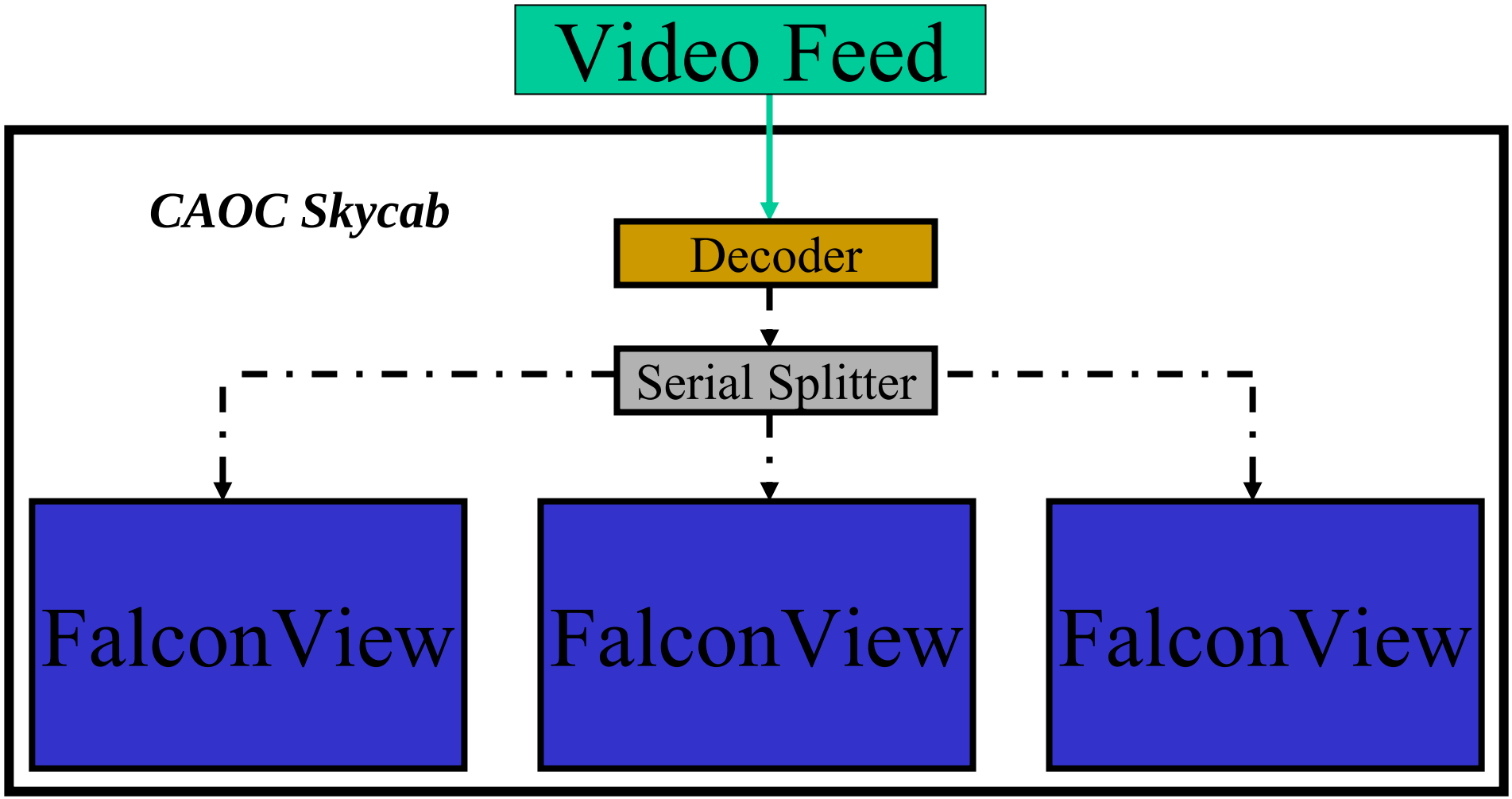
FalconView Records Mission in Track file that can be reviewed / replayed at any time





Back to today…

Data Architecture - July

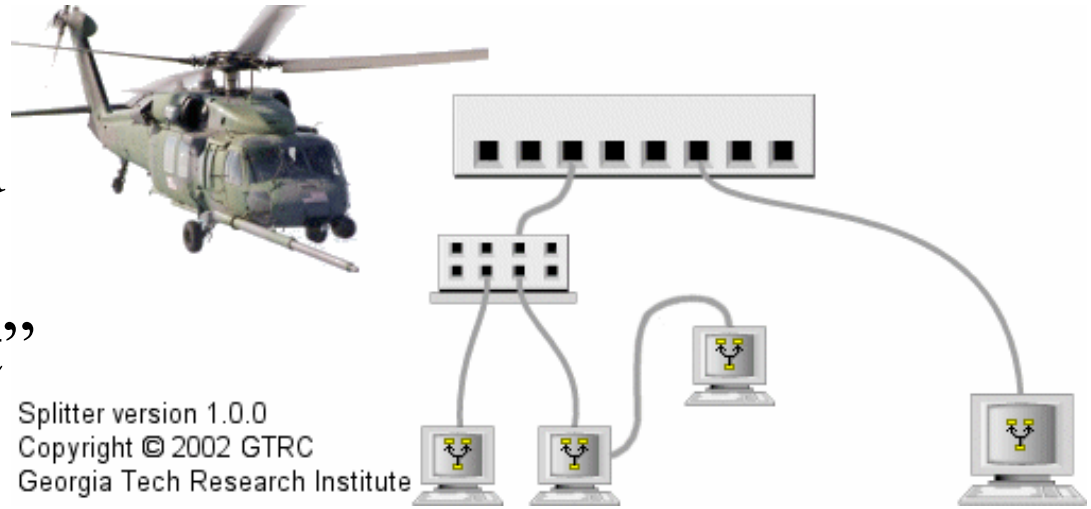


Spiral 1 Shortfalls

- Need to run serial cable to each individual PC where you want to display Predator Position
- Different floor areas require separate decoders
- FalconView can only display a single position at a time, need to manually swap video cables to switch between different aircraft/feeds

HH-60 “Splitter” Program

- Program to take intertwined GPS and NRT Intel feed on a serial port and “Split” into two separate TCP/IP feeds



- Also had intrinsic ability to take any serial feed and translate into TCP/IP to broadcast across the network
- Also developed “Network NMEA” feed to receive GPS feed across a network

Spiral 2 – December 2002

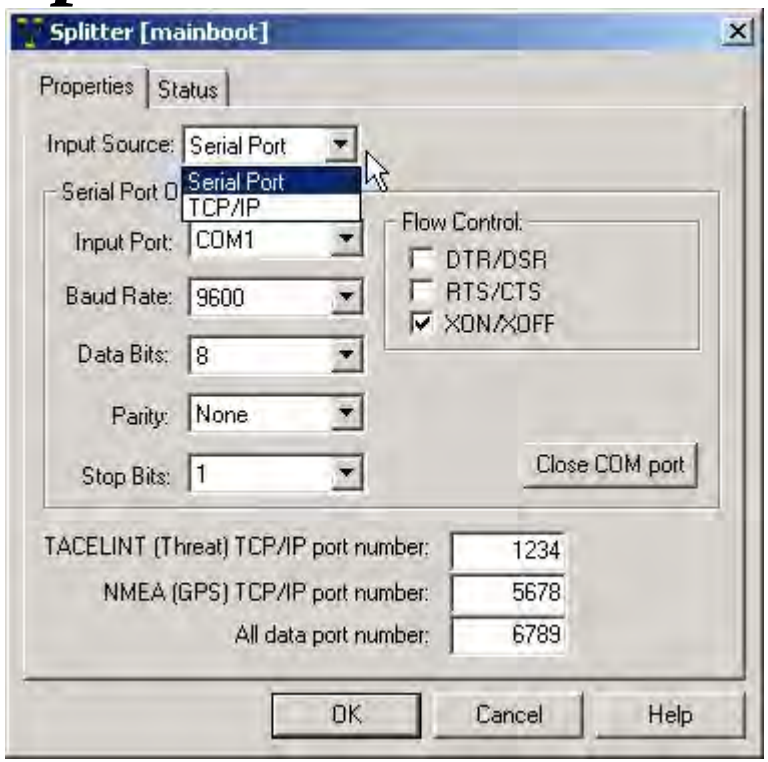
- Leverage HH-60 Splitter program to broadcast ESD across a network



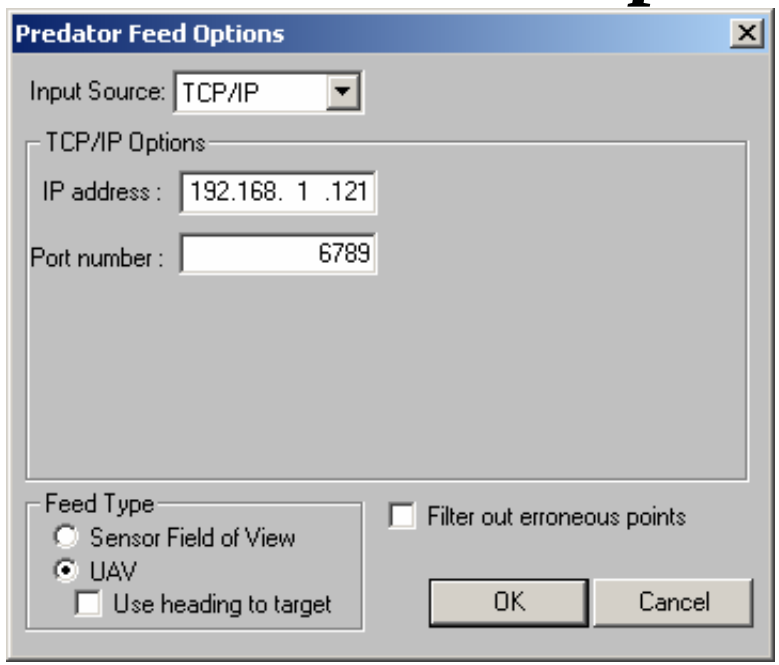
- Modify FalconView Predator feed to support TCP/IP feeds as well as existing Serial feed
- Relocate teletext decoders from CAOC floor (under Predator LNO's desk) to secure area

Spiral 1 New Features

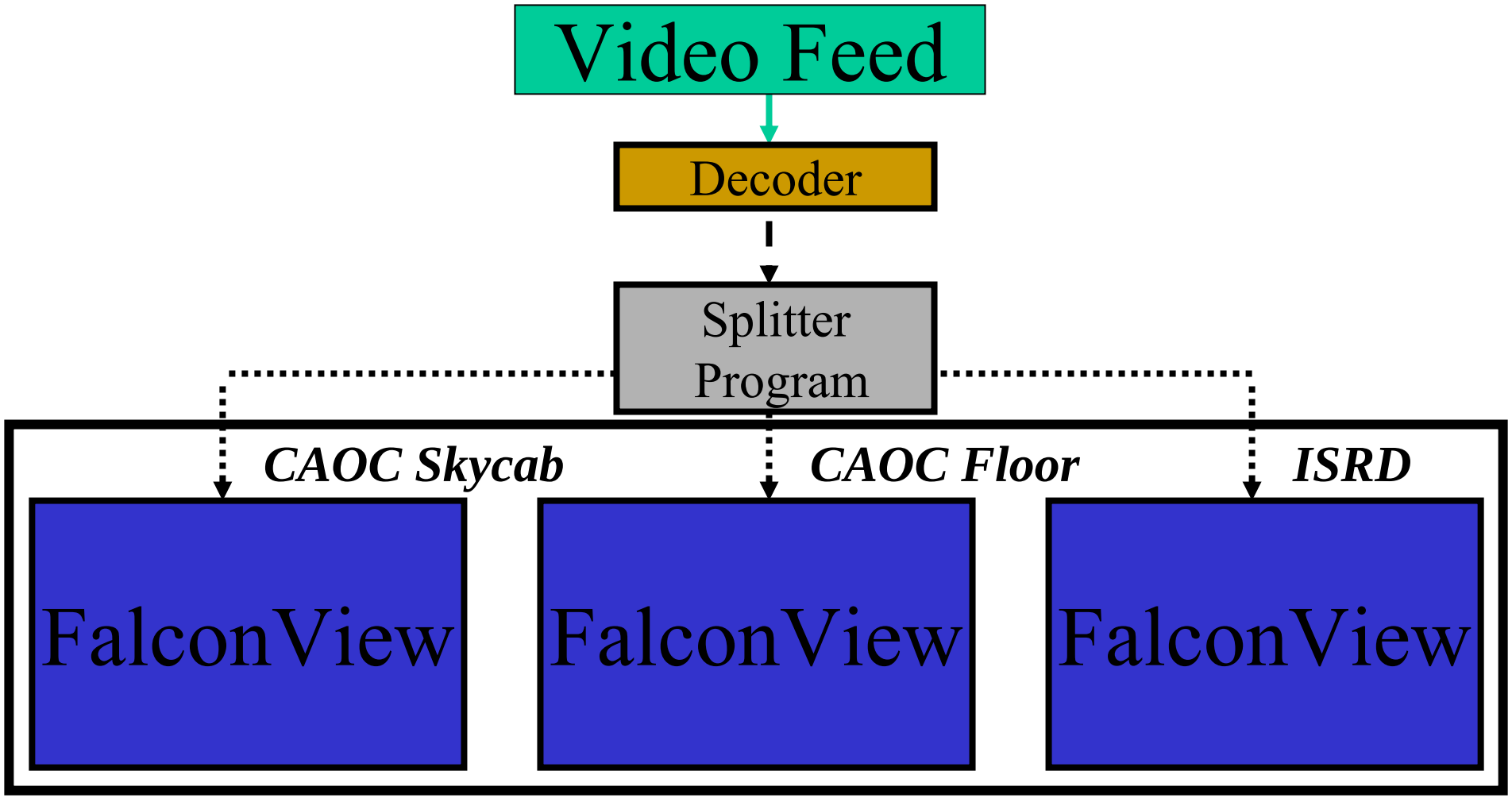
Splitter



New Pred Feed Options



Data Architecture - December



Spiral 2 Shortfalls

- FalconView can only display a single position at a time, need to swap TCP/IP input settings to switch between different aircraft/feeds
- Concern about “how much bandwidth is this using?”
- Growing awareness that there soon will be many more Predators

Spiral 3 – February 2003

- Driven by input from Predator Community
- Add "MultiPredator" Tool to display both vehicle and SPI for multiple Predators

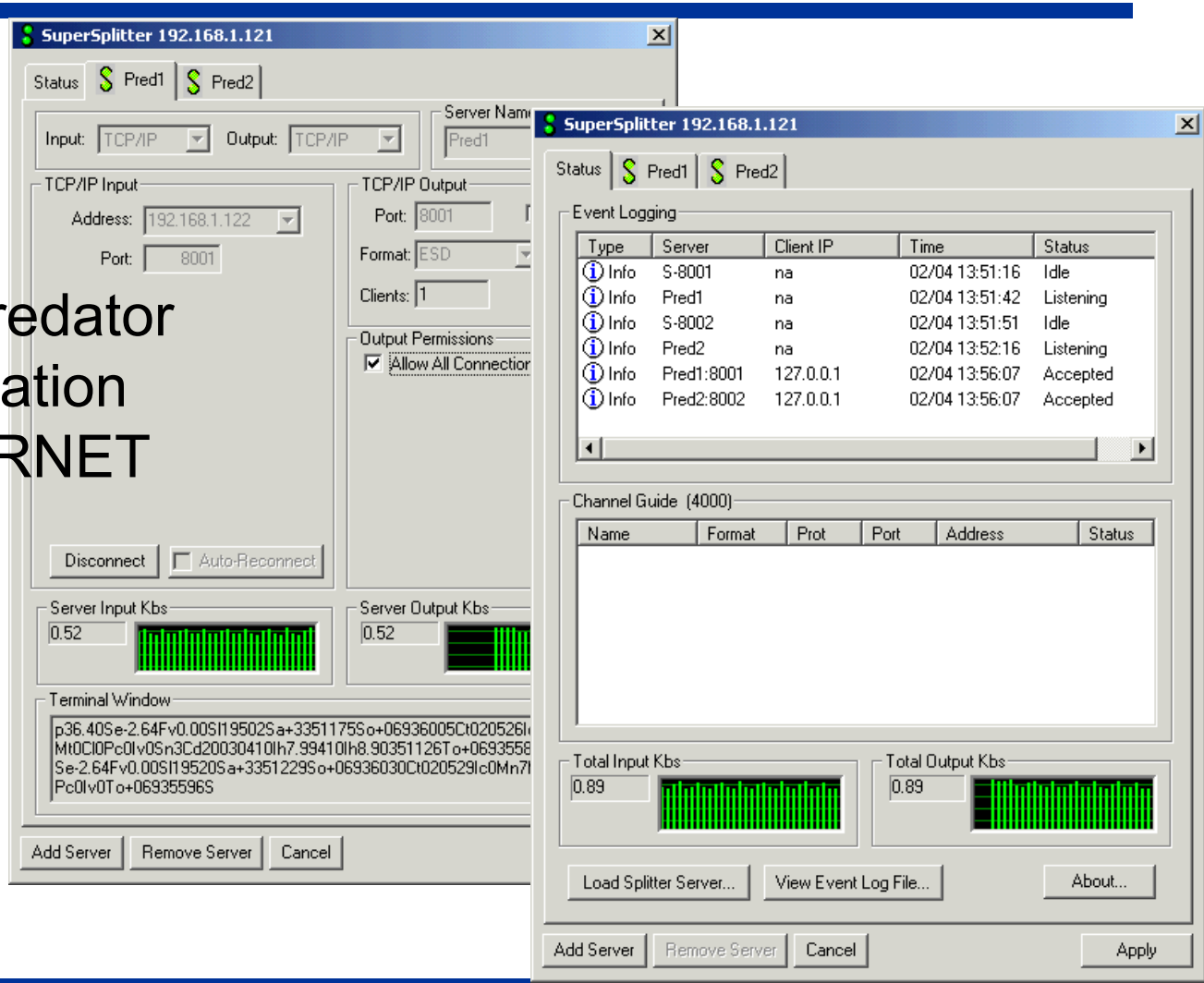


- Add SuperSplitter to translate serial to TCP/IP for multiple ESD (or anything else) feeds
- Add "Raindrop Launcher" to pass coordinates from FalconView to NG's Raindrop point mensuration tool using "Machine to Machine interface

FV TST Enhancements

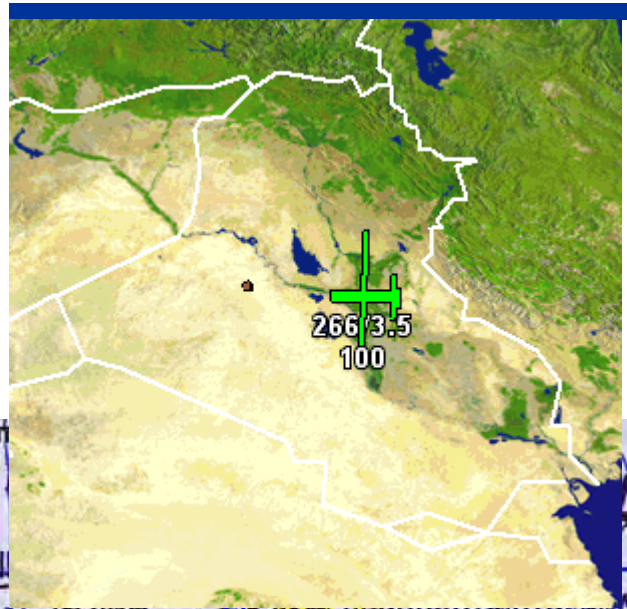
Super Splitter

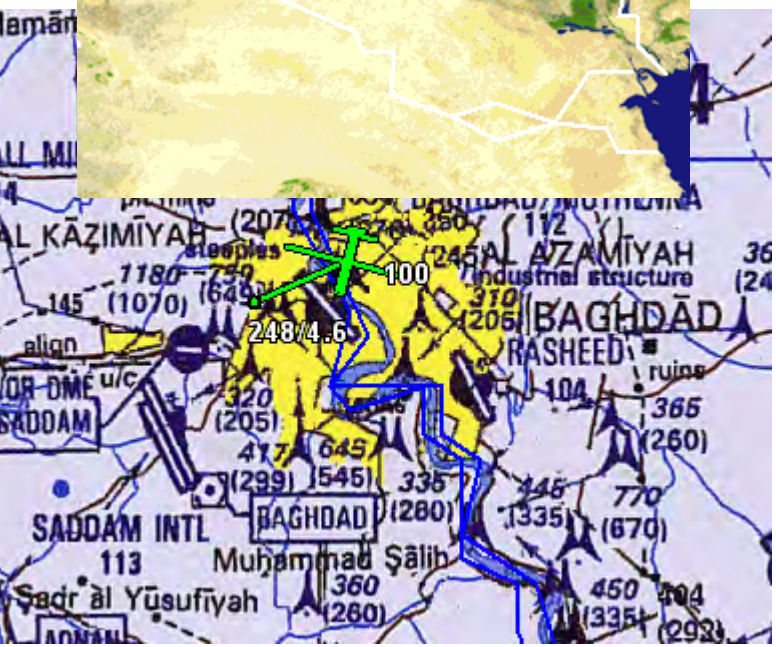
Transmitting Predator Position Information across the SIPRNET

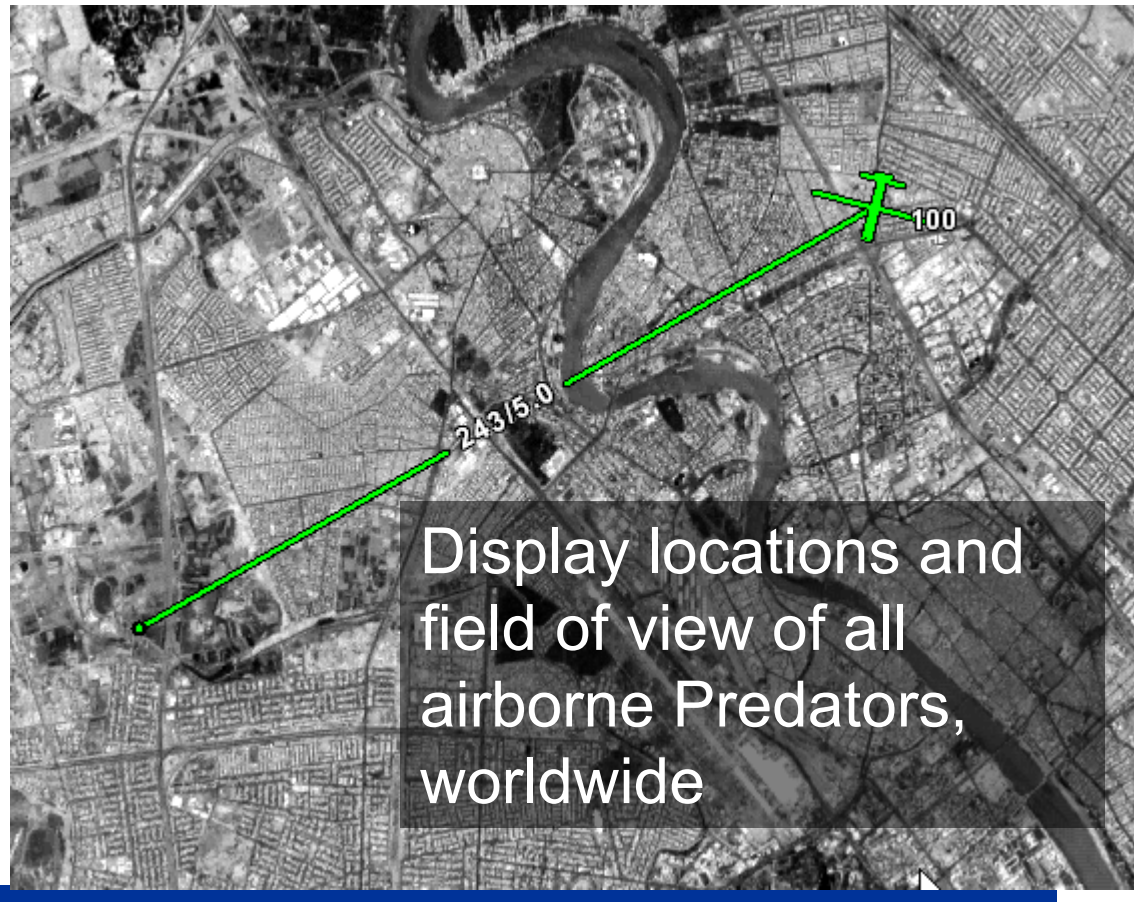


FV TST Enhancements

MultiPredator Tool







Display locations and field of view of all airborne Predators, worldwide

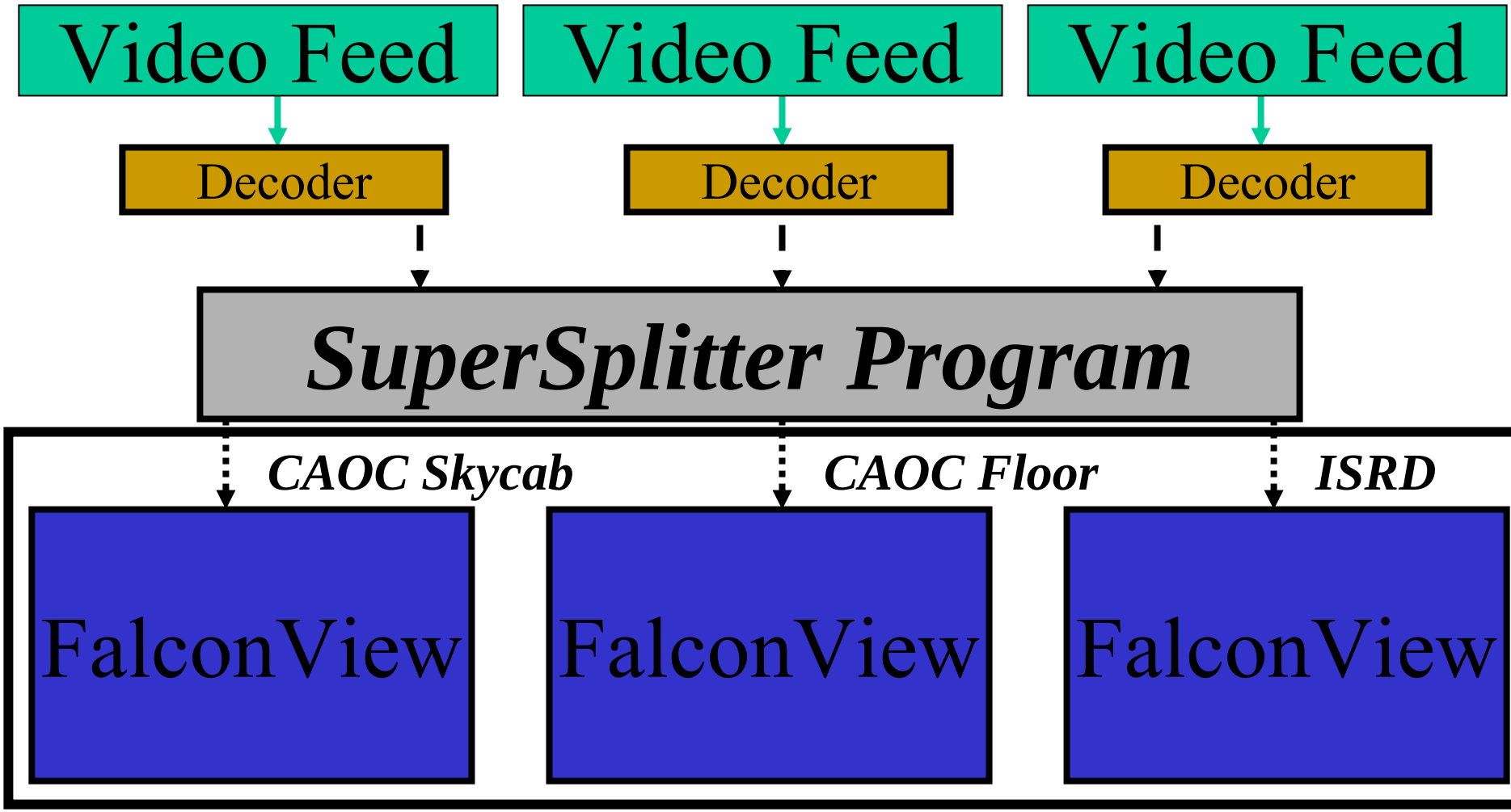
FV TST Enhancements



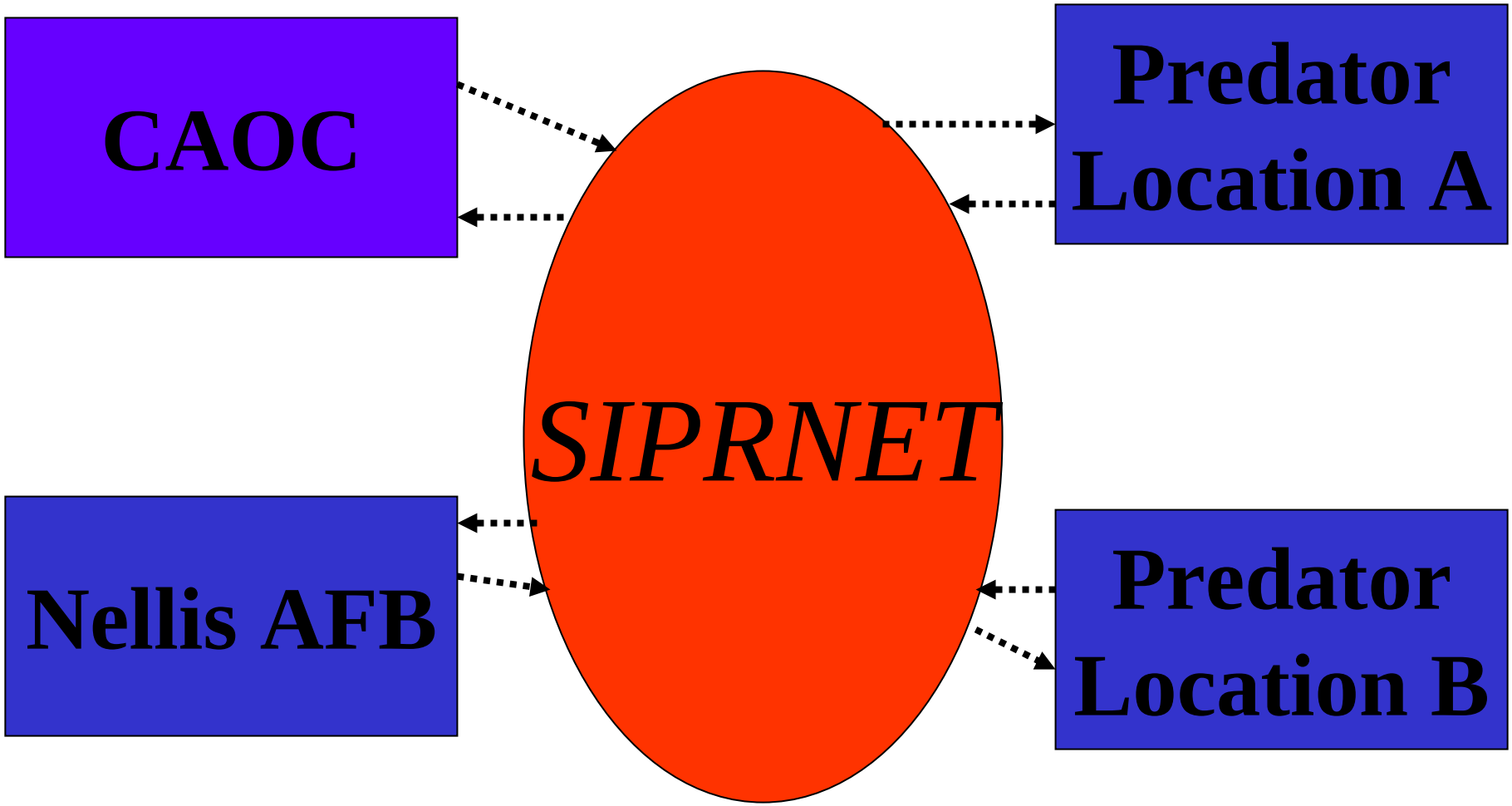
RainDrop Launcher – Machine to Machine Interface (M2MT) from FalconView to RainDrop Mensuration Tool



Data Architecture – Feb 2003



Data Architecture Continued



Current Status – Today!

- Spiral 2 (Predator “GPS” feed) being fielded across DoD as part of PFPS 3.3.1
- Spiral 3 (MultiPred Tool)in use throughout the Predator community, GCS, Ops Cell, CAOC, Exploitation Cell, Fwd Locations etc.
- Additional applications beginning to connect to ESD TCP/IP stream from SuperSplitter
- Spiral 4 integrated into PFPS 4.0 (in test)

"Real World" Spiral Development

- In Wartime you've got everything *but* time
- Need to rapidly develop and field a solution, even if it isn't perfect
- Field an 80% solution or even a 50% solution until you can get feedback and determine what people really need
- If "spiraling" is just justification for continued funding it isn't spiral development at all

Lessons Learned

1. Listen to your customers
2. Just because it looks good in a demo doesn't mean it works
3. Find your "Alpha Geek"
4. Don't try to do everything at once
5. Plan to spiral within spirals
6. Be very careful when your developers start thinking they're smarter than the customer

Lessons Learned

7. It’s gotta be easy to use
8. Leverage off what people got and what people know how to use

Questions?



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Network-Enabled Battle Command for the Joint Fight

10th Annual NDIA
Expeditionary Warfare Conference

25 October 2005

Colonel Jim Henderson
Battle Command & Awareness Division
US Army Futures Center
Training & Doctrine Command

Joint Operational Environment

Full Spectrum Challenges & Implications

Traditional

States employing legacy and advanced military capabilities and recognizable military forces, in long established, well known forms of military competition and conflict. *(challenge our power)*

Extend mastery of major combat operations to drive capabilities with the broadest utility across the ROMO

Irregular

Unconventional methods adopted and employed by non-state and state actors to counter stronger state opponents. (erode our power)

Increase versatility and agility of the same forces on which we will rely for conventional operations

Catastrophic

Acquisition, possession, and possible employment of WMD or methods producing WMD-like effects against vulnerable, high-profile targets by terrorists and rogue states.

Advance expeditionary response capabilities to deter the use of or destroy Weapons of Mass Destruction

Disruptive

International competitors developing and possessing breakthrough technological capabilities intended to supplant U.S. advantages in particular operational domains. *(marginalize our power)*

Develop the intellectual capital to power a culture of innovation and adaptability



Future Force Critical Capabilities



Develop a Joint and Expeditionary Army with Campaign Capabilities

- **Broad range of capabilities with multiple military options for any situation, across the spectrum of conflict**



- **Rapidly deployable, highly mobile land forces able to fight on arrival**



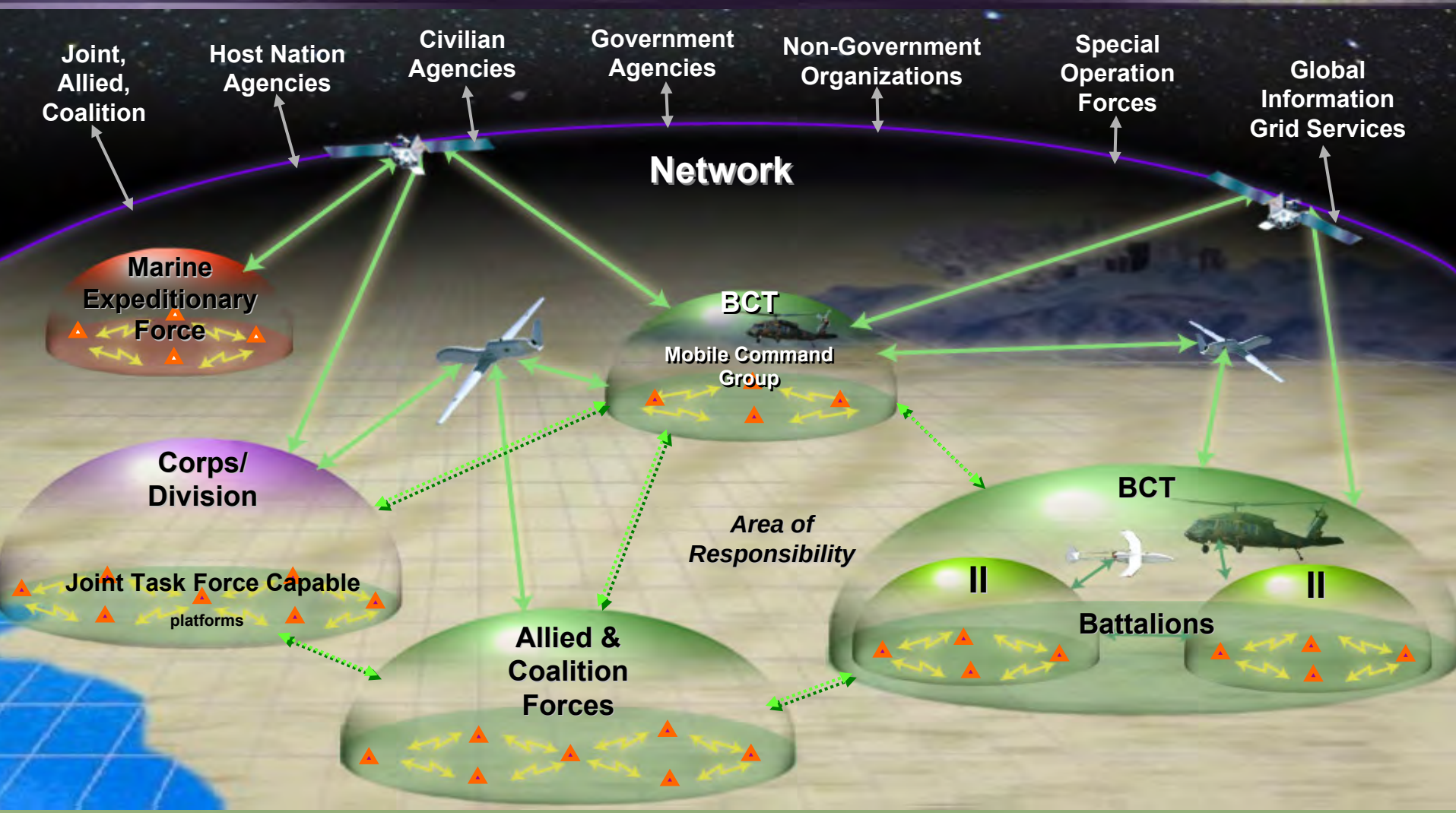
- ***Joint networked forces (all echelons) and linked sensors, shooters, and commanders for enhanced lethality***



- **Self-sustained forces (limited periods) and a greatly reduced theater logistics footprint**



LandWarNet



LandWarNet provides the full spectrum of connectivity – from the deployed Soldier to Home Station Operations Centers, National/Strategic Intel Centers and Logistic Support & Sustainment locations – encompassing Joint, Interagency, and Multi-National (& Coalition) capabilities.

LandWarNet Vision



LandWarNet integrates applications, services, and network transport across the warfighting, intelligence, and business domains enabling Leader-centric operations anytime, anywhere at every echelon as a part of the Joint Force. LandWarNet is managed, defended, and operated as part of the enterprise global network. LandWarNet is spirally developed, delivered, trained, and sustained.

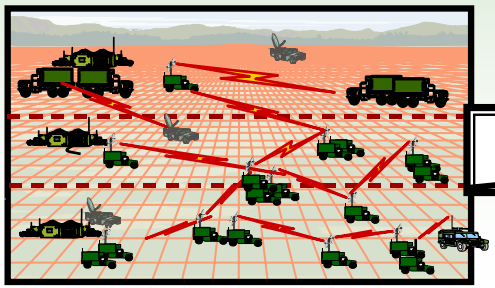
Enabling Organizations

LANDWARNET Board Of Directors

- TRADOC Futures Center
- CAC/CASCOM
- TPIOs/TSMs
- TRADOC Schools

Battle Command Steering Committee

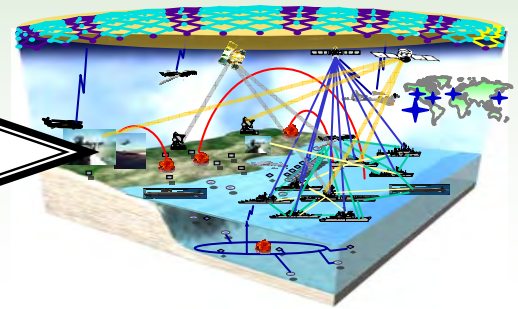
- Army Staff/ASA(ALT)
- PEOs/PMs
- USJFCOM, Services
- DARPA
- NATO
- Industry



LandWarNet

Current

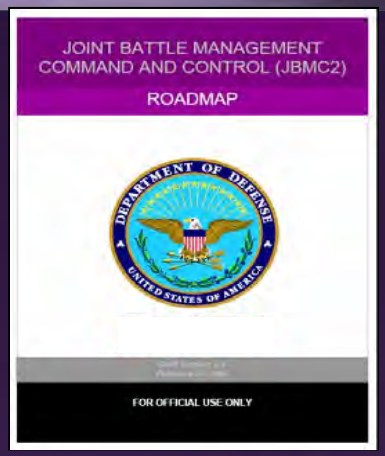
Future



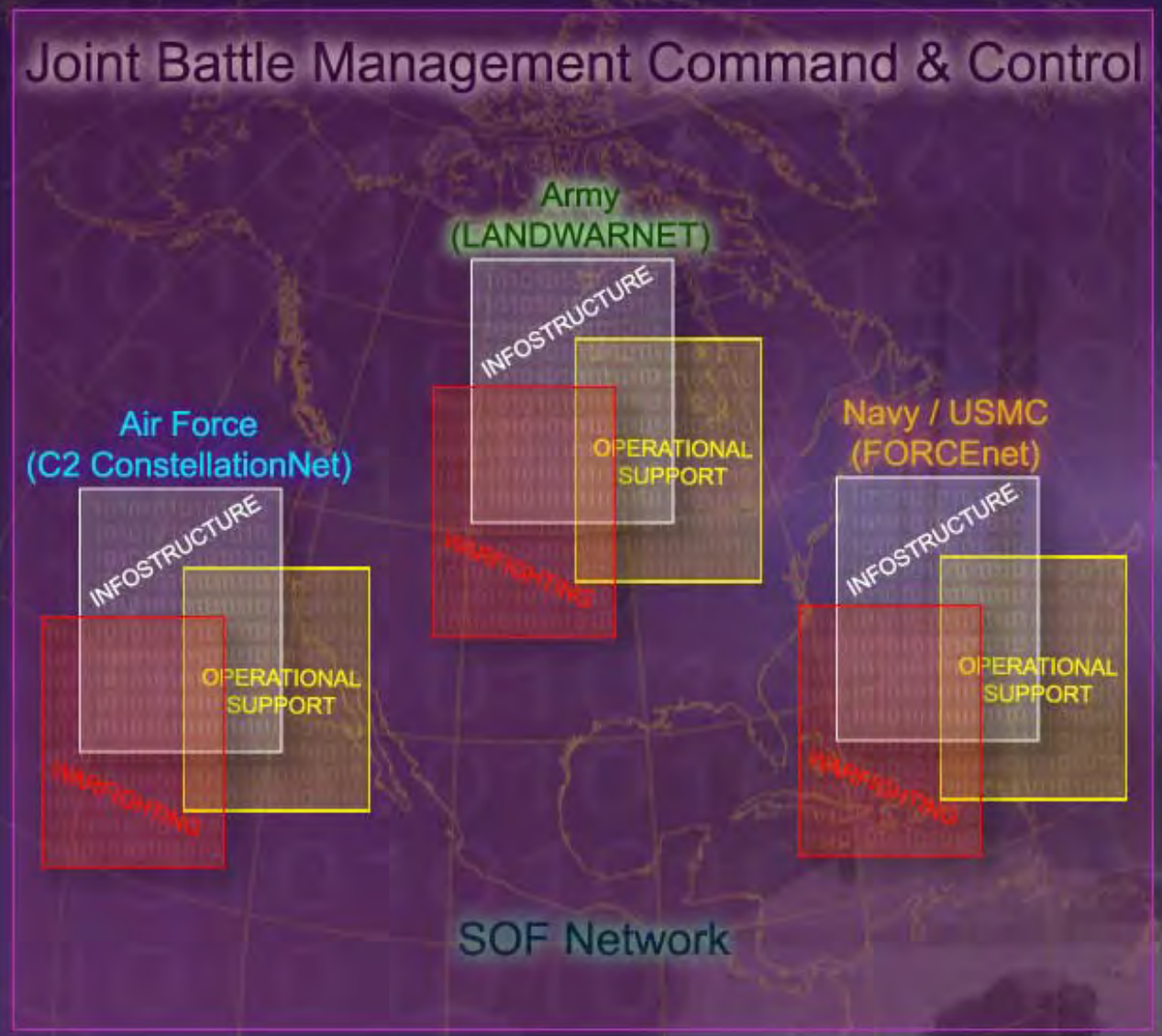
Integrates the following:

Static Command Posts (CP)	Comms On-The-Move, Leader-Centric
Limited Connectivity & Collaboration	Global Connectivity, Collaboration
Tethered to fixed CP	Assured Mobile Comms Anytime, Anywhere
Collocated Stovepipe	One Joint Common Picture
Army-Centric	Joint at the Core

Joint Network-Enabled Force



- **Captures Joint Network Capabilities and Integration**
- **Encompasses All Aspects of Evolving**
  - **Battle Command**
  - **Communications**
  - **Information Management**
  - **Decision Support**



Network Characteristics



- The Network - a key component of the Future Combat Systems
- Future battle organizations - *smaller*, yet *more lethal*
- Trade "mass" for "knowledge"
- "Knowledge" - the dominant weapon of the future
- Must move information around the battlefield
- Soldiers will derive power and safety in networked environment

See First… Understand First… Act First… Finish Decisively

Network Enabled Battle Command

- Better synchronizes Joint effects in the battlespace
- Connects sensors and shooters
- Increases lethality, survivability, and responsiveness



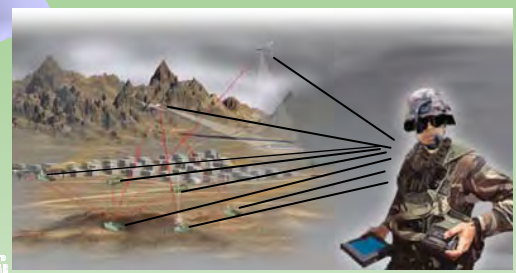


- *Single battle command system of systems that is joint-interdependent*
- *Joint-capable Army headquarters*
- *Multi-echelon collaborative information environment*
- *Horizontal and vertical sensor fusion enables all operations*
- *Battle Command on the move without degradation*
- *Mission command of self synchronizing forces*

More Combat Power

Challenges in Developing the Network









- **Find the right information tools**
- **Providing Soldier the best possible set of capabilities**
- **Increasing usability and trainability**
- **Cognitive demands of networked-enabled environments**
- **Development of effective approaches to train networking skills.**

Developing the Network - A Strategy



Major Objective Description

Develop operating force Integrated Network Architecture and resource plan for LandWarNet, the Army's contribution to the Global Information Grid (GIG).

Capability Gaps

- A unitary, mobile Battle Command System
- A multi-layered, dependable, self-healing network that enables on-the-move battle command
- Fully interoperable Joint, interagency, and multinational Battle Command System
- Standardized data format and database structures Single data fusion capability that allows data and information sharing across battlefield functions and echelons
- An application-based, multi-level security structure

Solution Strategy

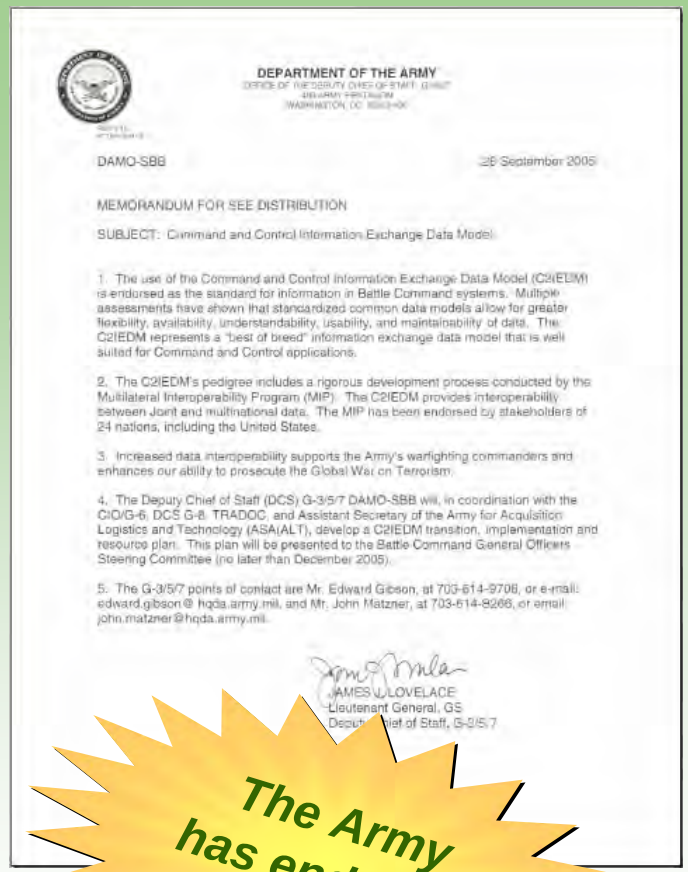
- Synchronize Battle Command capability solutions with Joint and Army acquisition strategies and the ACP
- Migrate select current BC capabilities to JC2 and FCS battle command
- Develop/execute a common net transport strategy
- Adopt a common data model and strategy
- Evaluate proposed Battle Command enhancements throughout full DOTMLPF spectrum
- Strict litmus test of operational cost-benefit analysis for any COTS/GOTS and S&T capability

Key Strategy Means

- Information Technology Portfolio Management governance
- Battle Command Concept Capability Plan
- Battle Command Integration and Migration Plan
- Develop and field key networking capabilities: JTRS, JNN to WIN-T transition, WIN-T
- C2IEDM Transition, Implementation and Resourcing Plan
- Multilateral Interoperability Program

Data Standards for Battle Command System Integration

- When 2 or more Battle Command systems exchange information, it is similar to people from different language groups communicating.
  - They can learn each others languages and communicate directly (This becomes increasingly difficult as other languages are added to the conversation).
  - They can learn a common language (This requires multiple translation).
- Regardless of the approach, ***something will be lost in translation***, because no two languages are identically defined.
- The best solution is for everyone to use the same language as their **"native"** language. This ensures that we say what we mean, and that what we say, is understood.
- The most practical solution is to implement a common language.



DEPARTMENT OF THE ARMY

DAMO-SBB 28 September 2005

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Command and Control Information Exchange Data Model

1. The use of the Command and Control Information Exchange Data Model (C2IEDM) is endorsed as the standard for information in Battle Command systems. Multiple assessments have shown that standardized common data models allow for greater flexibility, availability, understandability, usability, and maintainability of data. The C2IEDM represents a "best of breed" information exchange data model that is well suited for Command and Control applications.

2. The C2IEDM's pedigree includes a rigorous development process conducted by the Multilateral Interoperability Program (MIP). The C2IEDM provides interoperability between Joint and multinational data. The MIP has been endorsed by stakeholders of 24 nations, including the United States.

3. Increased data interoperability supports the Army's warfighting commanders and enhances our ability to prosecute the Global War on Terrorism.

4. The Deputy Chief of Staff (DCS) G-3/5/7 DAMO-SBB will, in coordination with the CIO/G-6, DCS G-8, TRADOC, and Assistant Secretary of the Army for Acquisition Logistics and Technology (ASA(ALT)), develop a C2IEDM transition, implementation and resource plan. This plan will be presented to the Battle Command General Officers Steering Committee (no later than December 2005).

5. The G-3/5/7 points of contact are Mr. Edward Gibson, at 703-614-9706, or e-mail: edward.gibson@hqda.army.mil, and Mr. John Matzner, at 703-614-8266, or email: john.matzner@hqda.army.mil.

JAMES L. LOVELACE
Lieutenant General, GS
Deputy Chief of Staff, G-3/5/7

The Army has endorsed C2IEDM

Multinational Interoperability Program (MIP)



- Voluntary Participating Nations/Commands:
- Secure MIP Common Interface (MCI)
- No impact on other Nations' C2IS Networks:



Radio



Wire

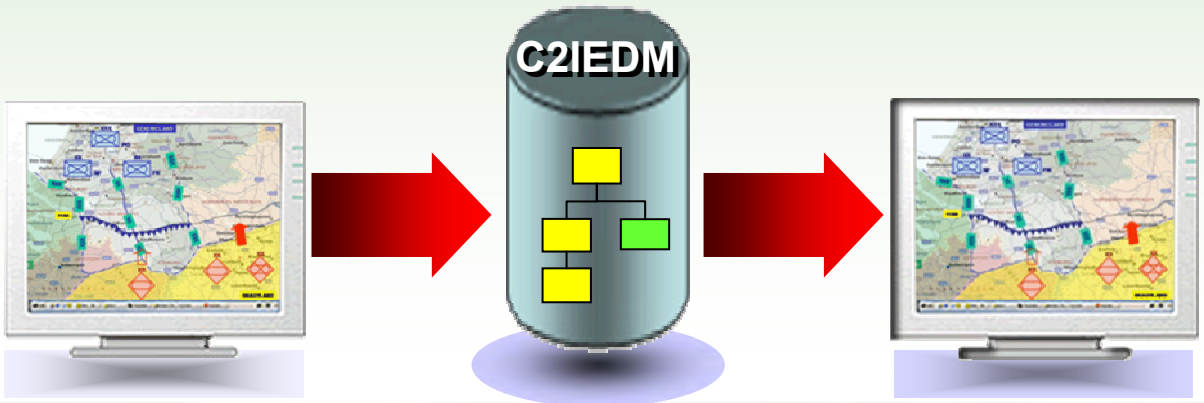


Microwave



Satellite

- C2 Information Exchange Data Model (C2IEDM)



Summary



- A Networked Army provides relevant and ready Landpower to the Joint Commander
- The Network underpins the effectiveness of every system
- Enhance Soldier's lethality, protection and situational awareness
- *See* first…*Understand* first… *Act* first … *Finish* decisively
- The Soldier is the Centerpiece

Network-Enabled Battle Command for the Joint Fight

10th Annual NDIA
Expeditionary Warfare Conference

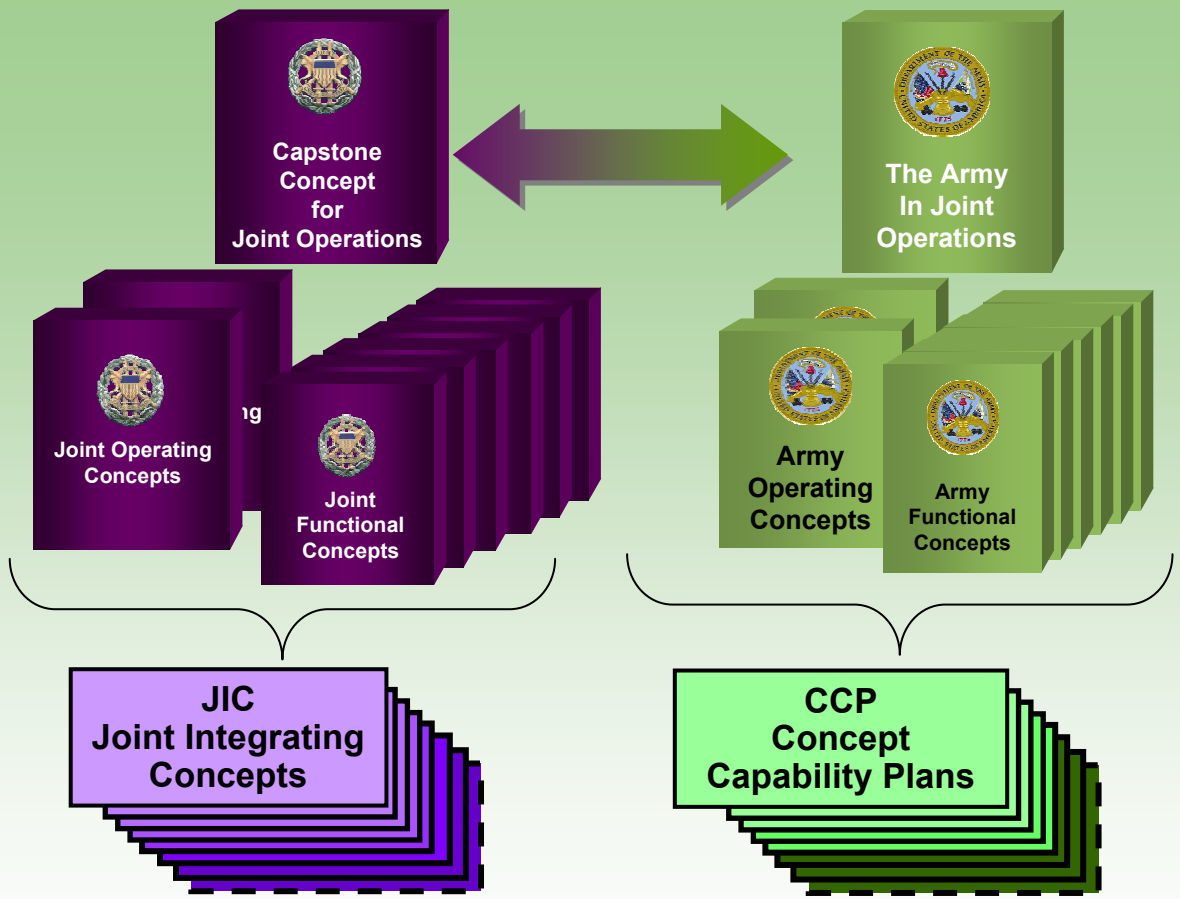
25 October 2005

Colonel Jim Henderson
Battle Command & Awareness Division
US Army Futures Center
Training & Doctrine Command

Back Up



Future Force Concept Strategy



Army Capstone presents a visualization of the Army's Future Force role in full spectrum, joint operations.

Key Ideas

- Shaping and Entry Operations
- Operational Maneuver from Strategic Distances
- Intra-theater Operational Maneuver
- Decisive Maneuver
- Concurrent and Subsequent Stability Operations
- Network-Enabled Battle Command
- Distributed Support and Sustainment

Concept Development & Experimentation



FY04 FY06 FY08 FY10 FY12 FY14 FY16



Stryker

Joint Prototype Path

Army Prototype Path

- Inform the future
- Spiral forward Future Force capabilities
- Satisfy critical operational needs
- Test compelling technology

Operational Lessons Learned

Joint Concept Development

Army Concept Development Path

Joint Concept Development Path



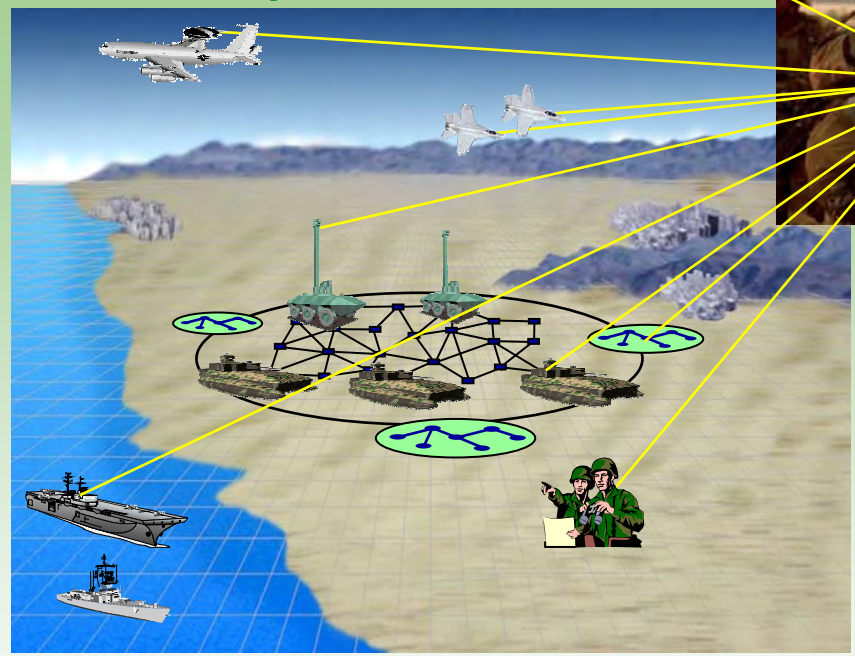
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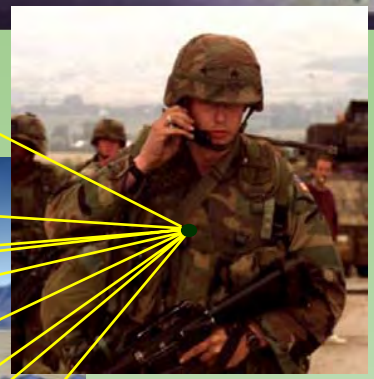
- Concepts based
- Coherently joint
- Reduce Risk
- Actionable recommendations

Menu

LandWarNet Components

LandWarNet Enables Leader-Centric, Joint, Interagency, & Multi-National Operations





Network Transport

- *Space*
- *Airborne*
- *Terrestrial*
- *Infrastructure*
- *Network Terminal*

Applications

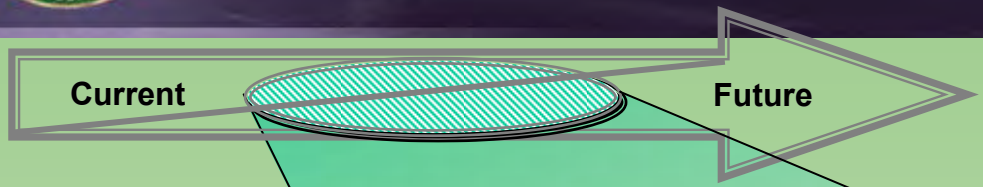
- *Battle Command*
- *Intelligence*
- *Logistics*
- *Business*

Services

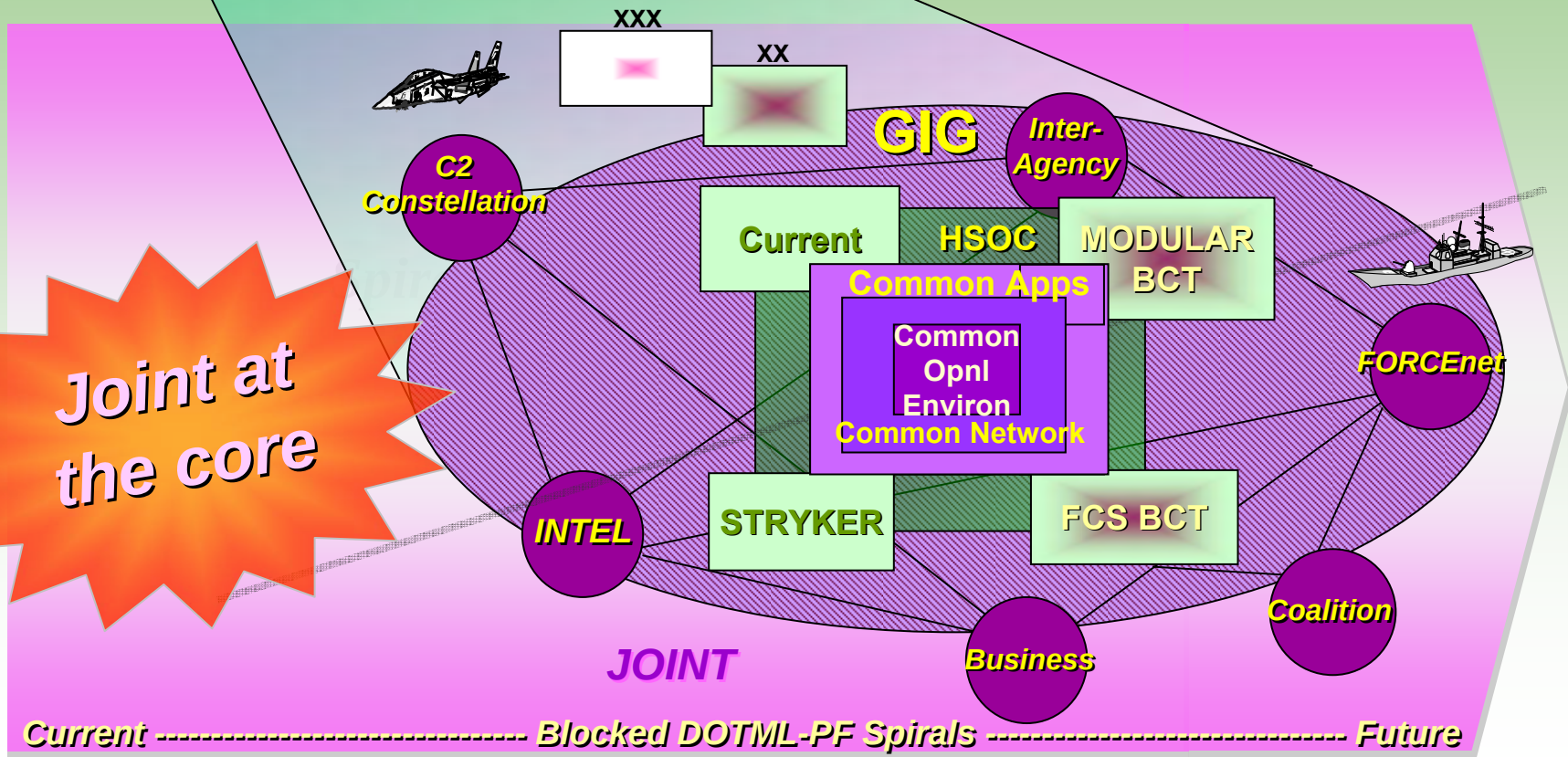
- *Voice, Data, Collaboration*
- *Mediation, Storage, Discovery, Messaging*
- *Speed of Service*
- *Quality of Service*
- *Hosting*
- *IA/Security*
- *NetOps (Info Assurance, Info Dissemination Mgt, Network Mgt)*

LandWarNet Strategy

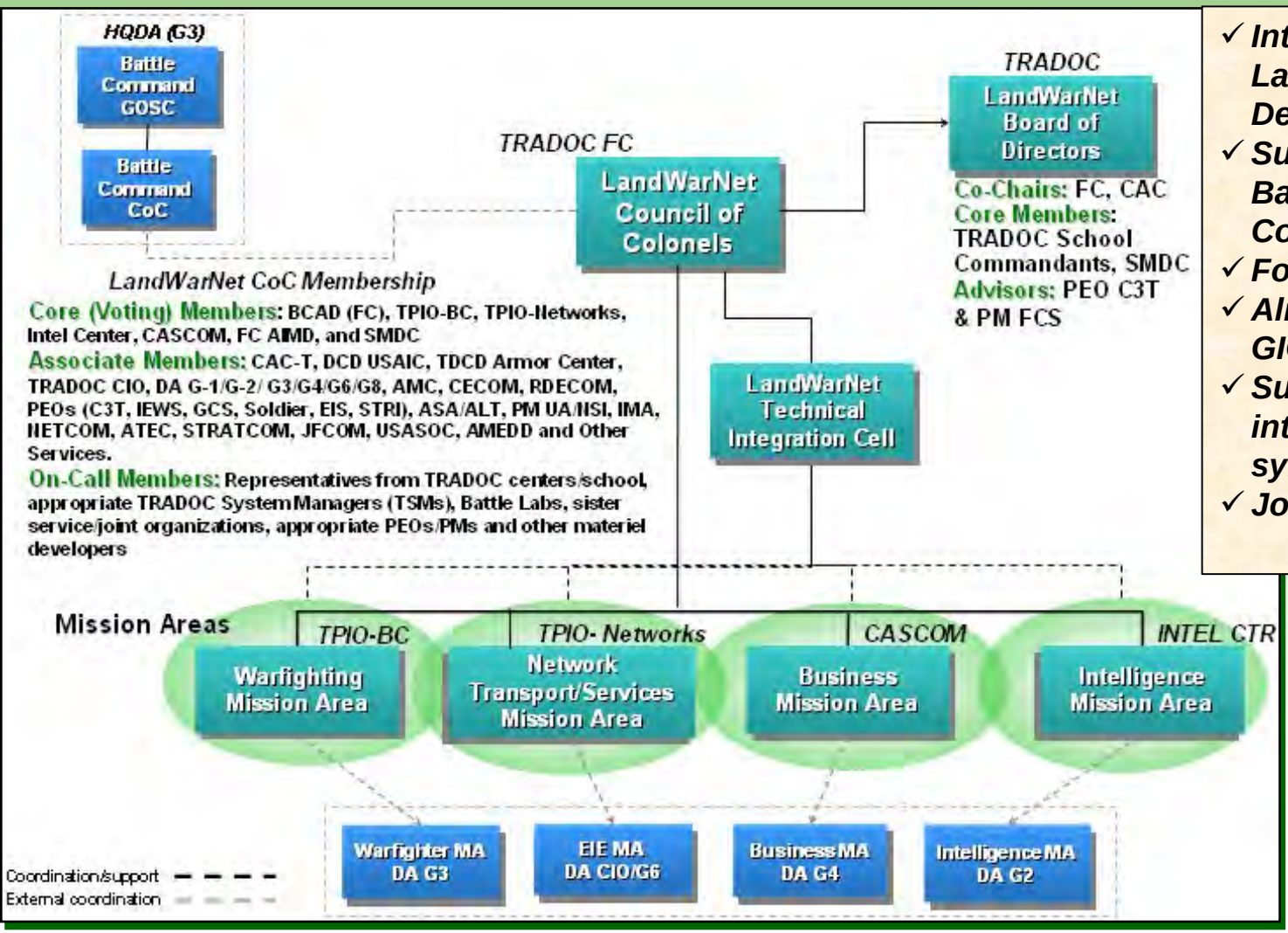




- *Spiral Towards Future by blocks*
- *Develop supporting DOTML-PF solutions*
- *Synchronize Development and Delivery with Army and Joint Transformation and Operational Mandates*



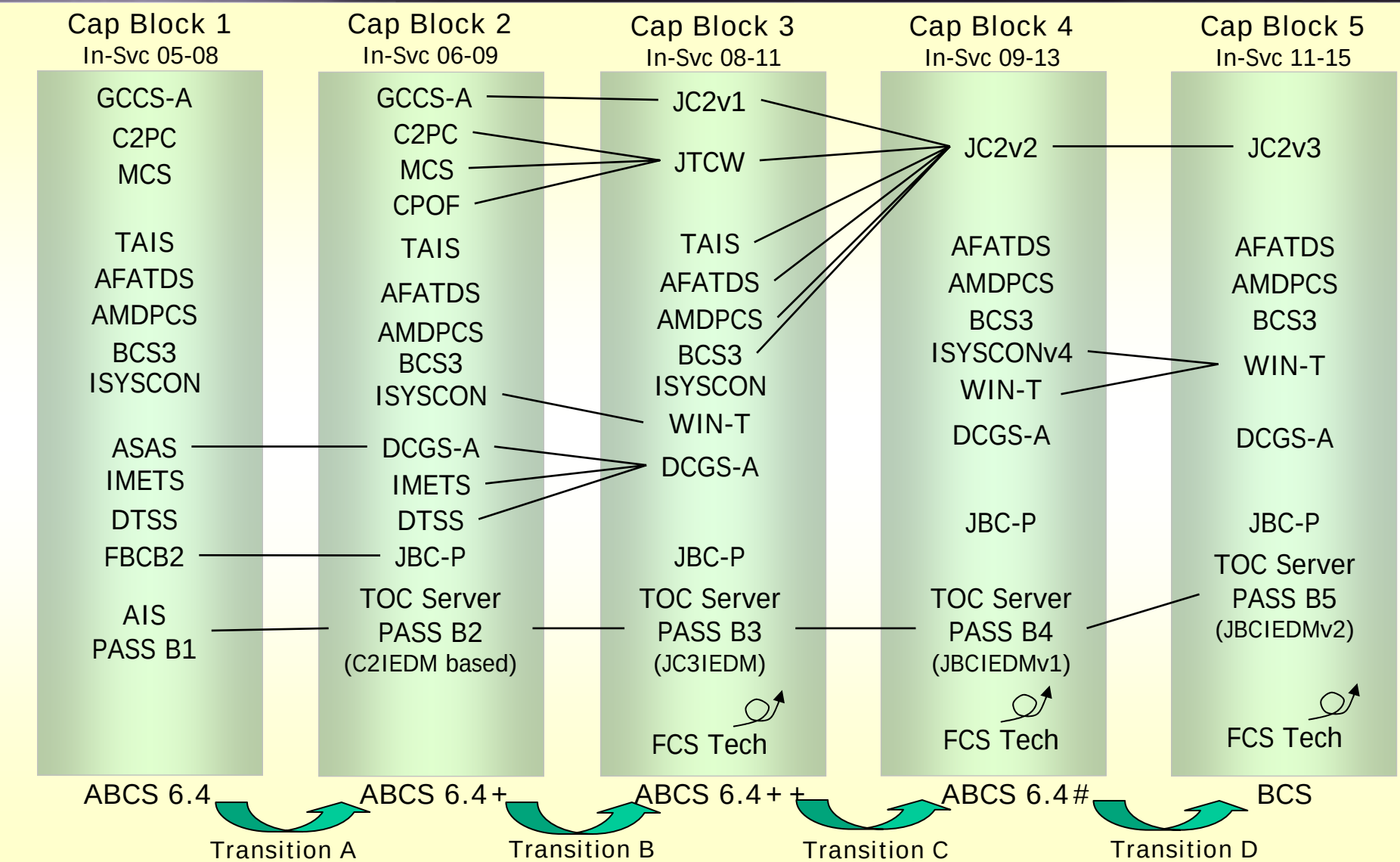
TRADOC LandWarNet Governance Organization



- ✓ *Integrates TRADOC's LandWarNet Capabilities Development efforts*
- ✓ *Supports HQDA-led Battle Command CoC/GOSC*
- ✓ *Focused on Warfighting*
- ✓ *Aligns with DoD/Army GIG Management*
- ✓ *Supports dynamic integration/ synchronization*
- ✓ *Joint Linkages*

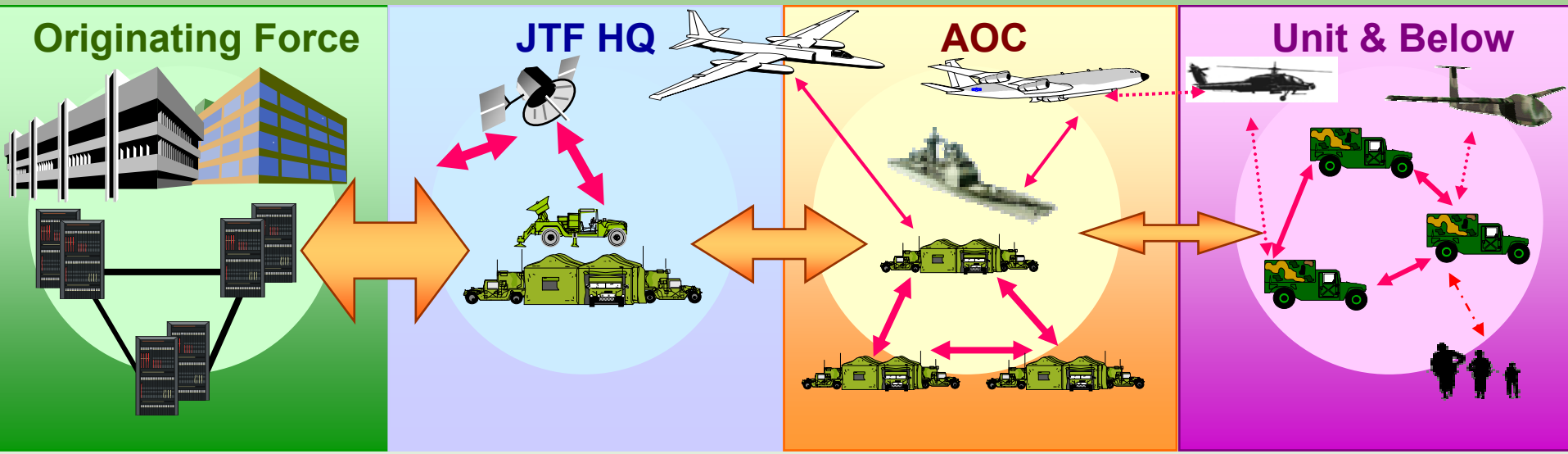
ABCS → JC² Capability Migration





Changing "Network" Operating Environments

Despite seamless end-to-end network, the environment changes



Environment factors

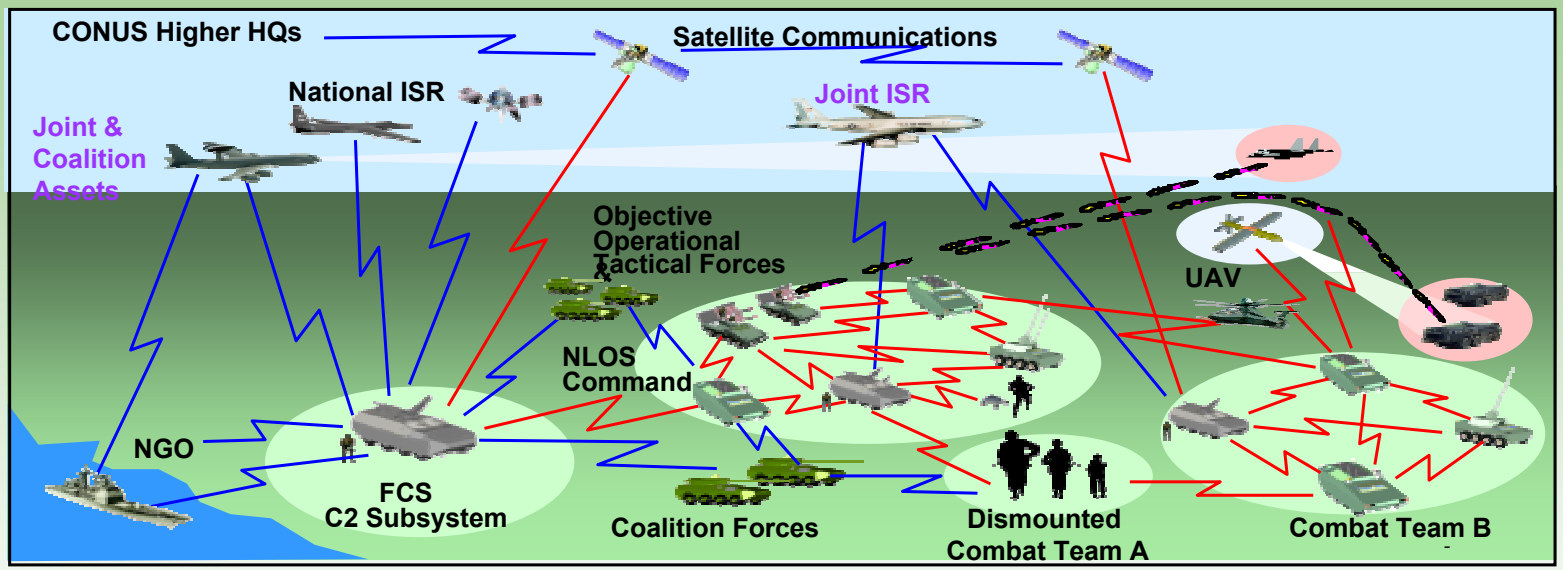
- **Network capacity**
- **Network connectivity**
- **Network availability**
- **Equipment footprint**
- **Staff size and training**
- **Static or dynamic configuration**

How to develop Enterprise Services to support disadvantaged network users?

Implementation guidance should account for disadvantaged network environments

Unique Unit Identifiers for Provisioning Joint Networks

Battlefield entities must be assigned unique identifiers so that we all will understand the who, what and organizational relationship of all things.



DoD needs standard representation of critical identity information

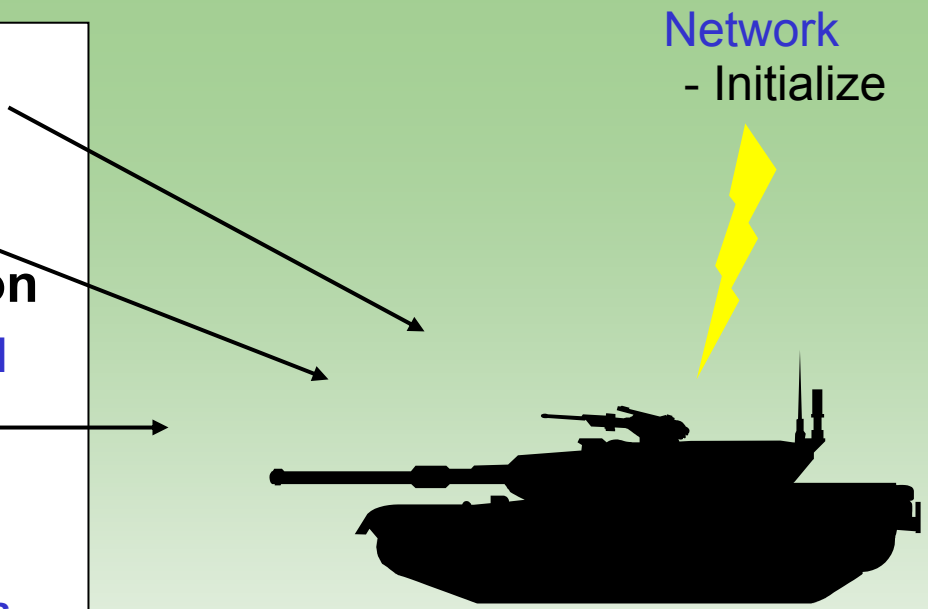
- Occasionally connected
- Coalition operations
- Systems interoperability
- Proximity relationships
- Limited bandwidth
- Aggregation

Example 1



- **A Common Data Model: What**
  - **M1A2 Main Battle Tank**
- **A Unique Identifier: Which**
  - **64 bit identifier for the platoon**
- **Organizational Relationship defined by force structure**
  - **1st Tank, 2nd PLT, C Co., 4th BN, 69th Armor**

Now we can link people, crews, supplies, missions, to their task organized forces and dynamically track them over time.



The structure of the task-organized force enables network initialization and addressing – e.g., "Burning Bricks"

It is like taking your phone number where ever you go.

Data Strategy Way Ahead



- Create new process based venues to achieve consensus and implement system of system capability.
- Define, implement, and enforce data standards that support the warfighter at the tactical level:
  - Develop a joint information exchange data model: (e.g. C2IEDM)
  - Implement Global Force Management (e.g. Prototype modularity)
  - Assign unique identifiers
  - Link unique IDs to IP addresses.
- Establish a governance structure which includes all Service equities and requires exceptionally strong system engineering methods within a rigorous process; and resource accordingly.

NDIA CONFERENCE



DLA AFLOAT

Col Jeff Hill
Chief, Distribution Management Division
Defense Logistics Agency

Today's Presentation

- DLA Enterprise
- Transformation Overview
- DLA Afloat Initiative
- Summary



The Enterprise

The DLA Enterprise as of 11 October 2005

FY01 Sales/Services:	$17B
FY02 Sales/Services:	$21.5B
FY03 Sales/Services:	$25B
FY04 Sales/Services:	$28B
FY05 Sales/Services:	$31.8B
FY06 Projection:	$34.3B

- Land/Maritime: $3.3B
- Aviation: $3.6B
- Troop Support: $12.9B
- Energy: $11.0B
- Distribution: $2.5B
- Other: $1.0B

- ~95% of Services' repair parts
- 100% of Services' subsistence, fuels, medical, clothing & textile, construction & barrier materiel

Foreign Military Sales

- Sales: $813.8M
- Shipments: 501K
- Supporting 124 Nations

Scope of Business

- 54,000 Requisitions/Day
- #54 Fortune 500 – Above Walt Disney
- #2 in Top 50 Distribution Warehouses
- 26 Distribution Depots
- 5.2 Million Items – eight supply chains
- 24.7M Annual Receipts and Issues
- 1411 Weapon Systems Supported
- 132.8M Barrels Fuel Sold (FY 05)
- $14.6B Annual Reutilizations/Disposals

People

- 21,039 Civilians
- 523 Active Duty Military
- 668 Reserve Military
- Located in 48 States/28 Countries


Transformation

DLA's Top Five Priorities

- **Mission –**
  - *Support to the War Fighter*
- **Transformation –**
  - *Enhanced Capabilities for the Future War Fighter*
- **People –**
  - *Transforming Our Human Capital and the Workplace*
- **Alignment –**
  - *To War Fighters…To Supply Chains*
- **One Enterprise –**
  - *Seamless Partnering for War Fighter Logistics Support*

Transformation

13 Programs and Initiatives

Defense Logistics Agency

- ✓ Supplier Relationship Management
- ✓ Distribution Planning Management
- ✓ **Global Stock Positioning**
- ✓ Executive Agency
- ✓ Business Systems Modernization
- ✓ Integrated Data Environment
- ✓ Customer Relationship Management
- ✓ National Inventory Management Strategy
- ✓ Product Data Management Initiative
- ✓ Reutilization Modernization Program
- ✓ Fuels Automated System
- ✓ Workforce Transformation
- ✓ Base Realignment and Closure

FY 04-11 Expect $465.4M in cost avoidance

Plus

Public/Private Competitions

Quadrennial Defense Review

Distribution Process Owner

$2.1 Billion Investment
$4.8 Billion Savings
to the Services thru FY11

Global Stock Positioning (GSP)
1 of 13 Transformation Initiatives

PAST

- Inventory Control Point-unique approach…no central strategy
- Vendor-centric stock positioning tendency
- Limited Service engagement

PRESENT

- Central strategy and business rules
  - Defense Distribution Center-led Stock Positioning Integrated Process Team
- Focus shift to Service/War Fighter
- Services engaged

✓ *Strategic Distribution Platforms (SDP)*
✓ *4 New Forward Depots*
➢ *Sigonella, Kuwait, Guam, Korea*

FUTURE

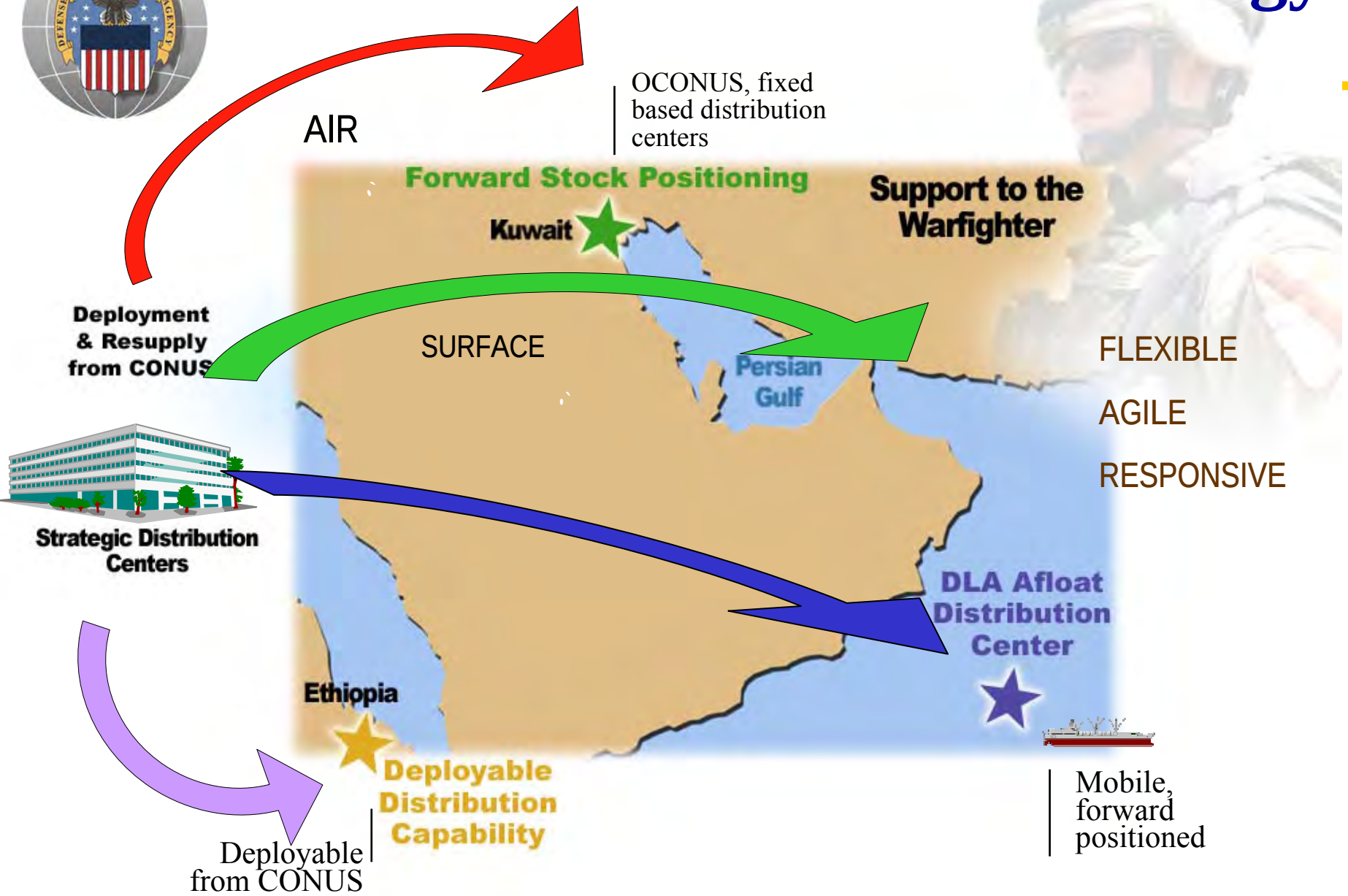
- Enterprise Strategy: Global positioning in advance of requirement to increase mat'l availability/reduce wait time
  - Increasing readiness while reducing cost
  - "Facing Fill" Targets built into Business Systems Modernization business rules
  - Hub and Spoke methodology
- Service/Warfighter-centric
- Services in partnership

✓ *Tailored stock profiles*
✓ *2 New SDPs--BRAC*
✓ *Deployable Depot*
✓ *DLA Afloat*



DLA Afloat Initiative

Forward Distribution Strategy

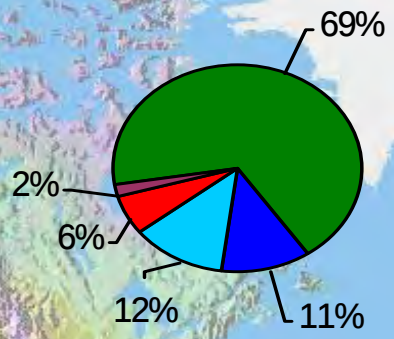


Comprehensive Distribution Management

Fixed Base Forward Stocks

$500M Annual Demand
All Sites





As of 17 Oct 05:
19,431 NSNs Available for Issue
500,122 MROs Processed
191.2 M lbs. Shipped
Est. Cost Avoidance: $144.1 M

Germersheim
Sigonella
Kuwait
Pearl Harbor
Korea
Yokosuka
Guam

Location	FSL # of NSNs	Projected # of NSNs	Projected Completion Date	Actual FY05 MROs
Germersheim	22,250	22,250	Completed	477,695
Sigonella	4,150	4,150	Completed	66,685
Yokosuka	23,350	23,350	Completed	420,544
Korea	14,300	14,300	Completed	61,181
Pearl Harbor	16,000	22,300	Feb 2006	161,167
Guam	5,800	8,700	Feb 2006	14,978
Kuwait	32,400	40,000	Feb 2006	476,829
Totals	118,250	135,050		1,679,079

(Data as of October 11, 2005)

✓Decrease CWT
✓Improve Readiness
✓Decrease Cost

FY04 – 11 … $465.4 Million Net Cost Avoidance

Defining the Problem: A Distribution Gap Solution: DLA Afloat

First 30 Days

Projecting Distribution Forward

High Transportation Cost/Limited Airlift

Air Sustainment Shipments $2.66/lb

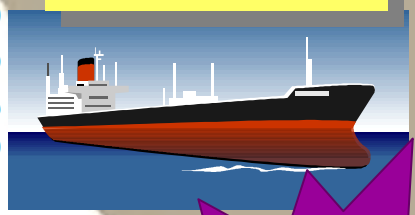


Capability Gap Caused By:

- Airlift Costs
- Lift Availability
- Shortened Delivery Time Targets
- Limited Range/Depth of Forward Stocks
- Remote Locations

Fills the Gap

Afloat Solution



Look to Sustain flow

Strategic Distribution Centers

Surface Sustainment Shipments $.22/lb

Long Delivery Lead Time

Leverages Peacetime Capabilities to Meet Wartime Operations

DLA Afloat Distribution Center Vision Statement

Concept:

- **Forward-positioned, self-contained, mobile distribution capability**
- **Capability to receipt, store and issue supplies tailored by DLA, COCOM and Services**
- **Sustainment of U.S. Military forces across range of contingency operations and exercises**
- **More than a preposition ship, a container ship, and a combat stores ship – has characteristics of each**

End state:

- **A rapid, flexible, capability focused on sustaining the War fighter around the world**

An Afloat Distribution Center Would Strengthen the Supply Chain By Ensuring Rapid and Flexible Material Distribution Tailorable to Theater Missions and Requirements

DLA Afloat Distribution Center Concept of Operations

A Working Distribution Center

Designated Ship(s) - Configured to distribute selected items within classes of supply (except fuel and ammo) to operational units;
Loading and unloading - Pier side, lighterage, vertical replenishment (Helo), potential limited organic delivery (trucks).
Basic Distribution Functions - (receipt, store & issue) + limited additional functions such as break-bulk.
Multiple storage capabilities - Including modular containers, pallets, down to bin-able items with issue from on-board stocks.
Integrated Capability - Complements DLA fixed based forward stocks & deployable distribution depot capabilities in peacetime and wartime.
Contingency/Exercise Support - Immediate material backup in early deployment/ sustainment -- stocking critical, fast moving items

Afloat Initiatives Within DoD

- **OSD / Joint Staff**
  - **Joint Expeditionary Force Projection/Sea Basing**
- **Navy**
  - **Joint Seabasing Lead**
  - **Sea Shield**
  - **Sea Strike**
- **Army**
  - **Army Supply Support Afloat Concept**
- **Marines**
  - **Maritime Prepositioning Force (Future)**
  - **Operational Maneuver from the Sea**
- **Air Force**
  - **Ammunition Prepositioning Ships**

Integrated Process Teams

OSD/ Joint Staff
Sea Basing Joint Integrating Concept IPT

Navy/USMC
Naval Logistics CONOPS Working Group

Army G4
Army Supply Support Activity (SSA) Afloat Work Group



DLA Afloat Distribution Center



DLA Afloat Distribution Center Key Benefits

Provides a suite of capabilities to support the War fighter :

- **Increased material readiness** - quick-response sustainment backup support to services' prepositioned stocks and deployed units operating requirements
- **Reduced airlift cost** of bulk items (construction supplies; Subsistence, etc.)
- **Reduced demand on airlift** re-supply missions
- **Minimizes land-based logistics footprint**
- **Worldwide distribution support** capability in addition to material support for contingencies and exercises
- **Supports sea-based power projection concepts** in both developed and austere operational areas (e.g., ports, ship-to-ship, helo)

DADC Time Line

Internal

√Completed Service Briefs

√Apply DORRA Gap Analysis

√Develop Analysis of Alternatives

– Refine CONOPS

– Submit POM (Jan/Feb06)

Dec 04	Mar 05	May 05	Jul 05	Oct 05	Jan/Feb 06	FY07	NLT FY08	NLT FY09

- OLD

- NEW

External

– √MSC Release Market Survey

– √Obtain MSC Market Survey

– Business Case Analysis

– JNT Capability Integration and Development System

– IOC



End Game is to have an Afloat Capability by FY09

Summary

- DLA Afloat Distribution Center will provide a mobile distribution capability to the war fighter as well as the humanitarian requirements necessary to support relief efforts from natural disasters
- DLA Afloat Distribution Center is a set of capabilities that enhance DLA's mission performance - not necessarily a single large platform
- One solution does not satisfy the range of objectives that we've discussed

Summary

- **Whatever we finally recommend needs to reflect the operational realities (including the humanitarian relief experienced with Hurricanes Katrina and Rita) and the flexible response required in an increasingly complex world environment**
- **A fiscally sound solution set of capabilities must be consistent with other Defense-wide initiatives that plan to use the sea as maneuver space**

Marine Aviation Transformation:

The Future is Now

Expeditionary Warfare Conference

27 October 2005

NATIONAL DEFENSE INDUSTRIAL ASSOCIATION

LtGen Michael A. Hough
Deputy Commandant for Aviation

MARINE AVIATION



It's all about



LEADERSHIP & VISION





Magnificent Marines Forge the Future!

Appreciation

Marine Leaders of Yesterday

Made

Marine Aviation of Today








Yesterday's Vision







Expeditionary Warfare from the Sea

TODAY
Still Carrying the Load







First to the Fight – First To Fight

TODAY

WE ARE FIGHTING A WAR WITH THAT VISION!



- OIF
  - 36 x CH-46
  - 16 X CH-53E
  - 27 x AH-1W
  - 12 x UH-1N
  - 6 x C-130J
  - 12 x F/A-18D
  - 10 x AV-8B
  - 5 x EA-6B
  - 1 x UC-35
  - 4 x UAV
  - MWSG (-)
  - MACG (-)
  - MALS (-)(+)
- CJTF-HOA
  - 4 x CH-53E
- MEUs

They may be old…but they still put out!

Magnificent Marines and their Fabulous Machines

C-130: 12,259 Hours



CH-46: 44,387 Hours



OEF/OIF



H-1: 42,438 Hours



CH-53E: 18,817 Hours

Doing More with Less

Winning With Legacy

F-18/AV-8B: 48,634 Hours



23/51



32/84

EA-6B: 8,246 Hours



30/70

OEF/OIF



12/46

UAV: 10,577 Hours



Command and Control

Expeditionary Warfare Concept -- Revalidated

Winning With Legacy

F-18/AV-8B: 48,634 Hours

EA-6B: 8,246 Hours



HOW ARE WE DOING THIS?

OEF/OIF



UAV: 10,577 Hours

Command and Control

Expeditionary Warfare Concept -- Revalidated

Winning Ain't Easy

- 2.0 Readiness
- Pre-Deployment Training
- Logistics Plan
- Maintenance Teamwork
- Command & Control



Effective Leadership is Hard Work

Winning With Legacy

F-18/AV-8B: 48,634 Hours

EA-6B: 3,246 Hours



SECOND



UAV: 10,577 Hours

Command and Control

HOWEVER, WE HAVE SOME FAMILY ISSUES...

Expeditionary Warfare Concept -- Revalidated

Tough Facts

- *War and Training for War is Expensive*
  - *There Ain't Enough $$ to Go Around*
- *Rotary Wing Centric Environment*
- *Training Efficiency Lacking*
- *Safety Program Lousy*
- *Aviation "Transition" Campaign*
  - *Work in Progress – Must Get It Right*

Retooling Necessary for Today & Tomorrow

WE HAVE BEEN BUSY!

2005



Lowering the Cost of Doing Business

Working the Issues

- *T&R Manual – Completed (20 yrs)*
- *Flight Hour Program -- Instituted (2yrs)*
- *Aviation Command & Safety Program – Institutionalized (1 yr)*
- *Aviation Training System – Incorporated (2 yrs)*
- *Aircraft Inventory Management Plan – Completed (1 yr)*
- *Squadron T/O's & T/E's – Reshaped (1yr)*
- *Aviation "Transition" Plan – Executing (30 yrs)*

Finding the Efficiencies: $$$$ & Manpower

$$$$ Are Scarce

Therefore, Efficiencies Are



BIG MONEY

Finding In-House Dollars for…


VISION 2015
Seabasing
Retooling the Vision for Tomorrow
Vision Without Funding is a Hallucination

SO ARE WE HALLUCINATING OR ARE WE RETOOLING?

We Are Retooling!









Transitioning to a New Era

Transition Plan:
The Good Stuff

- C-130J
- MV-22
- UH-1Y/AH-1Z
- JSF
- HLR
- VUAV
- VXX
- Command & Control



Retooling the Vision 2005-2015

KC-130J

IOC 2005

- FOC: FY13 ?
- Total Force:
  - 130T: 28 (AMP) ?
  - 130J: 51 (PBD-753...?)
- Survivability
- JHL -- ACTD



Desert Flight Operations Video

"Nothing Better Been Invented"

MV-22 Osprey
IOC 2007

- Transitions begin...
  - 2D MAW – FY05
  - 3D MAW - FY09
  - 1st MAW - FY13
  - 4th MAW - FY15
- Testing
  - OPEVAL – Completed
  - Milestone III: Sep 05
  - VMX-22 flown >5000 hrs
- FOC: FY18 (PBD-753)
- Objective: 360

Flight Operations Video



Spectacular: Flight of the Osprey

UH-1Y & AH-1Z

IOC 2008/11

- OPEVAL 2nd Qtr FY 06
- Build New
- JHL/JMRA -- ACTD



Flight Operations Video

The Bridge to Joint Multi-Role Aircraft (2020+)

STOVL Joint Strike Fighter
IOC 2012

- Power on CTOL
- STOVL in Jig
- 1st CTOL Flight 2006
- 1st STOVL Flight 2007
- USMC receives first aircraft 2010



Flight Operations Video

On Schedule and On Track

CH-53E / Heavy Lift Replacement
IOC 2015

- JCIDs
- J&A signed
  - All FY 05 funding released
- DAB Milestone B
- OPEVAL 2013



ESSENTIAL for STOM / Sea Basing

Electronic Attack

- EA-6B
  - OIF & OEF operations
  - Inventory management
  - ICAP III
  - Fly through 2015
  - EW studies in progress



Grand Ol' Gal – But the Fat Lady's Warming Up

Unmanned Aerial Vehicles

IOC 2011

- Pioneer
  - Deploying ISO OIF
  - Flying 3X peacetime rate (FY 2005: 6000 Hrs)
  - Sustain through 2015
- Risk reduction: Prototype VUAV Flight (Jan 06)





Pivotal Player in GWOT

Presidential Helicopter Replacement Program (VXX)

IOC 2010+

- Legacy VH-3D/VH-60N
  - Increased utilization since 9/11
  - Need for improved communications and survivability
- VH-71A contract awarded to Lockheed Martin Jan '05



Marine Pride – President's Own

Marine Aviation Logistics

SUSTAINING AND TRANSFORMING EXPEDITIONARY WARFARE



TODAY: LEGACY

TOMORROW:

PERFORMANCE BASED LOGISTICS

GOING ON AND STAYING ON

Aviation C2 Family of Systems
IOC 2009



The "Glue" That Binds

“Transitioning”

Getting Everyone on the Same Sheet of Music



We Are Humming and We Are Strumming

But 2005 Wasn't All Fun...



2005: The Year from HELL!



NOT ALL PAIN IS GAIN

Wading Thru the Tough Stuff



- BRAC
- PBD-753
- Budget Battles
- QDR

Some Chicken – Lotsa Feathers

BRAC



- *No Major Issues*

Your Marines Did You Proud!

PBD-753

- C-130J
- V-22
- Joint Common Missile

Took a Licking But We Kept On Ticking

Budget Battles

- PB06 on the Hill – $419B DOD
- FY05 Supplemental – $81B DOD
- Unfunded Programs List – $428M
  - On the Hill
- More COST OF WAR
  - FY06 Supplemental – In Work
  - "Bridge" Supplemental - $373M
    - On the Hill

Dueling for Dollars

Today - 2015

The Institution is



Engaged in a
"Work in Progress"

These Are Unprecedented Times

Reshaping Aviation Today-2015

Under the Umbrella of QDR



We are Leading the Charge

Getting the New Think In and the Old Think Out

Reshaping our Thinking



The Vision of Expeditionary Warfare Hasn't Changed...

...We Are Just Tweaking It

Meeting a Changing World with Effective Change

Riding the Dragon Before the Dragon Rides Us!

- *Shifting from Conventional to Irregular*
- *MARSOC Integration: Aviation Slice*
- *Joint TACAIR Integration*
- *Joint Rotary Wing Review*
- *Repositioning Marine Aviation Laydown*

Shaping Aviation for a 21st Century Marine Corps

THE MISSION HAS NOT CHANGED

"WINNING WARS

&

MAKING MARINES"



Winning Wars is a Team Effort

We Are Just Changing Our View for Future Needs



Winning Wars Tomorrow

Requires

Reshaping Our Corps Today

Sharpening the Spear for Our Sons and Daughters

STILL OUR MOST



LETHAL WEAPON…



The Marine

Yesterday – Today – Tomorrow

Marine Aviation



Making Progress Every Day for Tomorrow

SO,
AT THE END OF THE DAY…

WHAT IS IT
ALL ABOUT?

LEADERSHIP & VISION

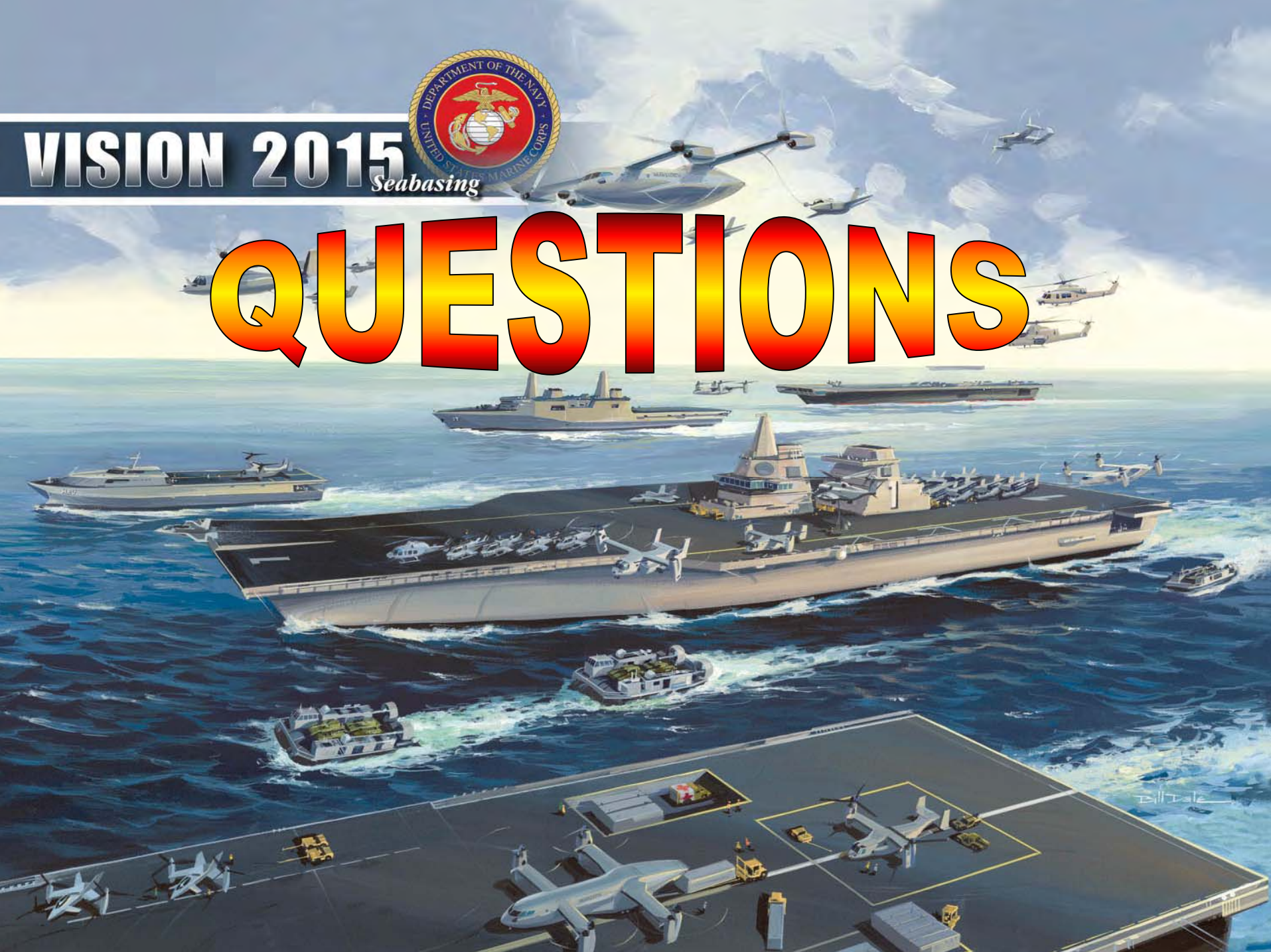








Carrying the Torch Today for Tomorrow


VISION 2015
Seabasing
QUESTIONS

Using Logistics to Gain Competitive Advantage



Parallels between Industry & Expeditionary Warfare

NDIA Expeditionary Warfare Conference

26 October 2005

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Overview

Although the examples aren't perfect, there are several striking similarities between the characteristics of expeditionary warfare and the battle for market share within industrial and consumer markets…

ajones@ups-scs.com

Similarities include…

- **Availability (A_o)** is critical to the military and to many industrial firms – a requirement to support the customer
- Resources are constrained, so **effectiveness** and **efficiency** have to be balanced
- "Silos" lead to **suboptimization**…E2E process design required
- **Change agents** can be critical to achieving success

Characteristics of Expeditionary Warfare

Agility

Versatility

Flexibility

Responsiveness

Forcible-entry capability

Sustainability

**Source: Expeditionary Warfare – www.exwar.org*

Agility

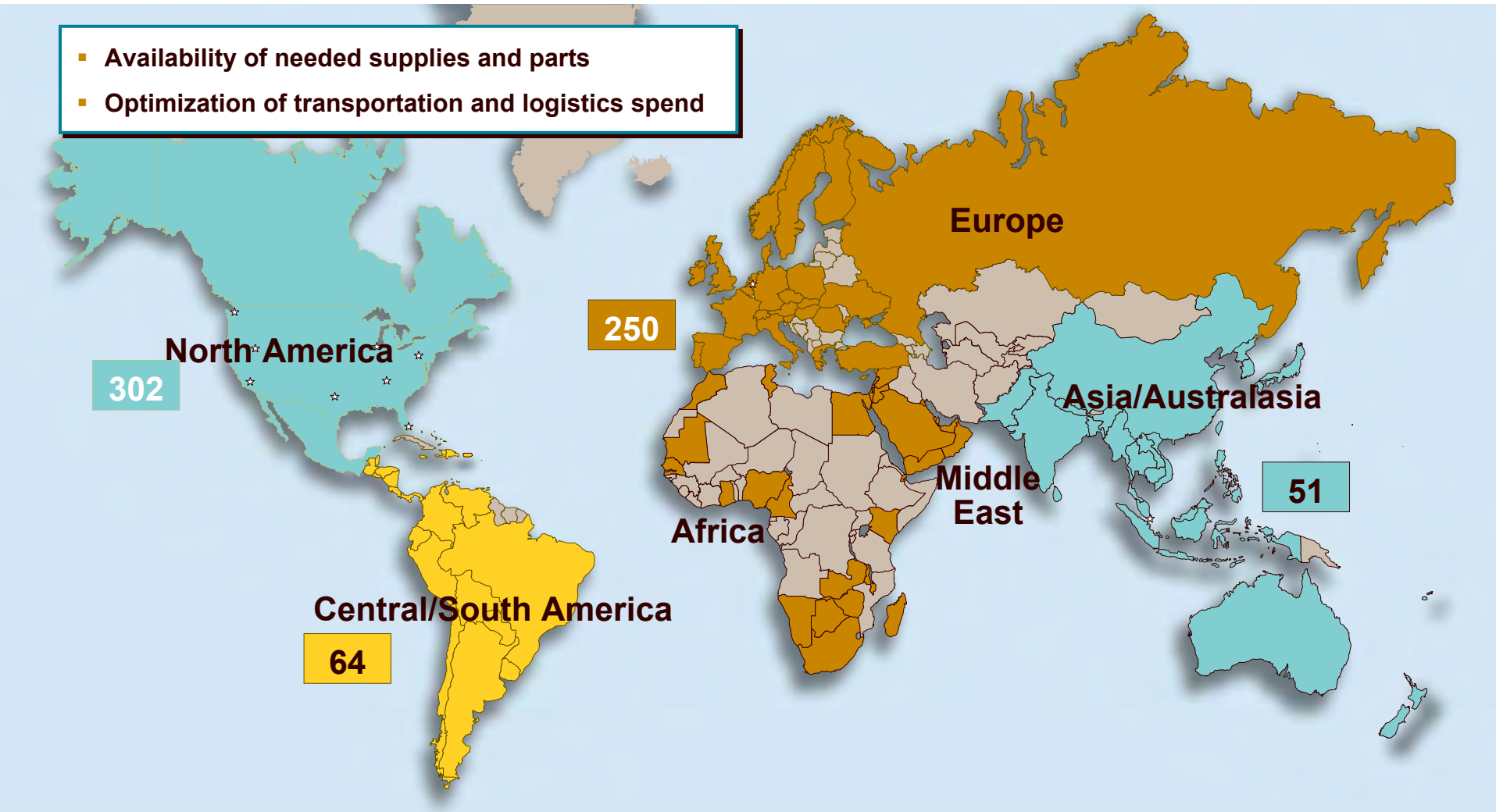
Worldwide responsiveness; ability to rapidly deploy (in any environment)



Agility

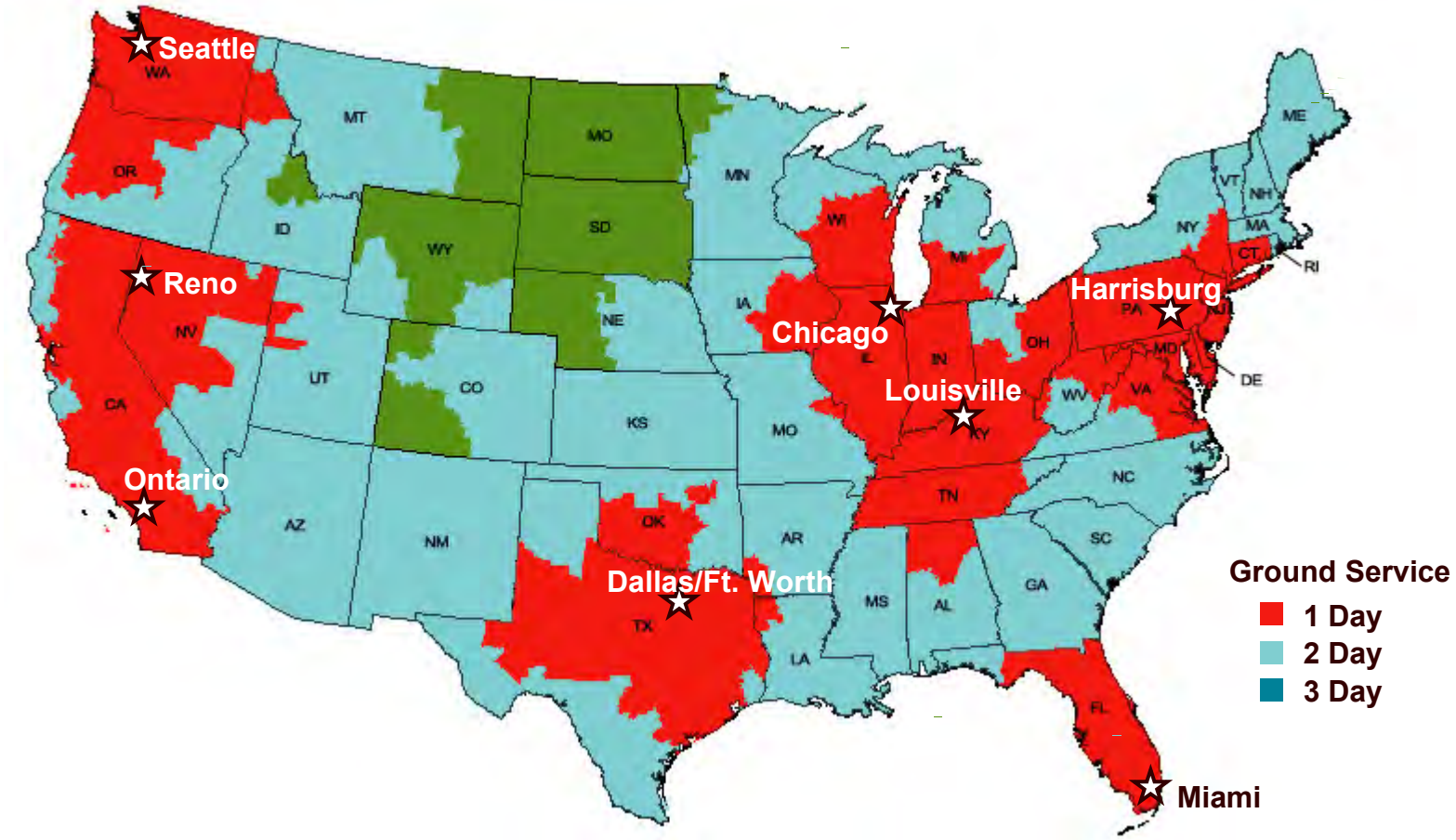
Customers leverage global footprint of 3PLs to gain access to new markets without huge capital investments.

- Availability of needed supplies and parts
- Optimization of transportation and logistics spend



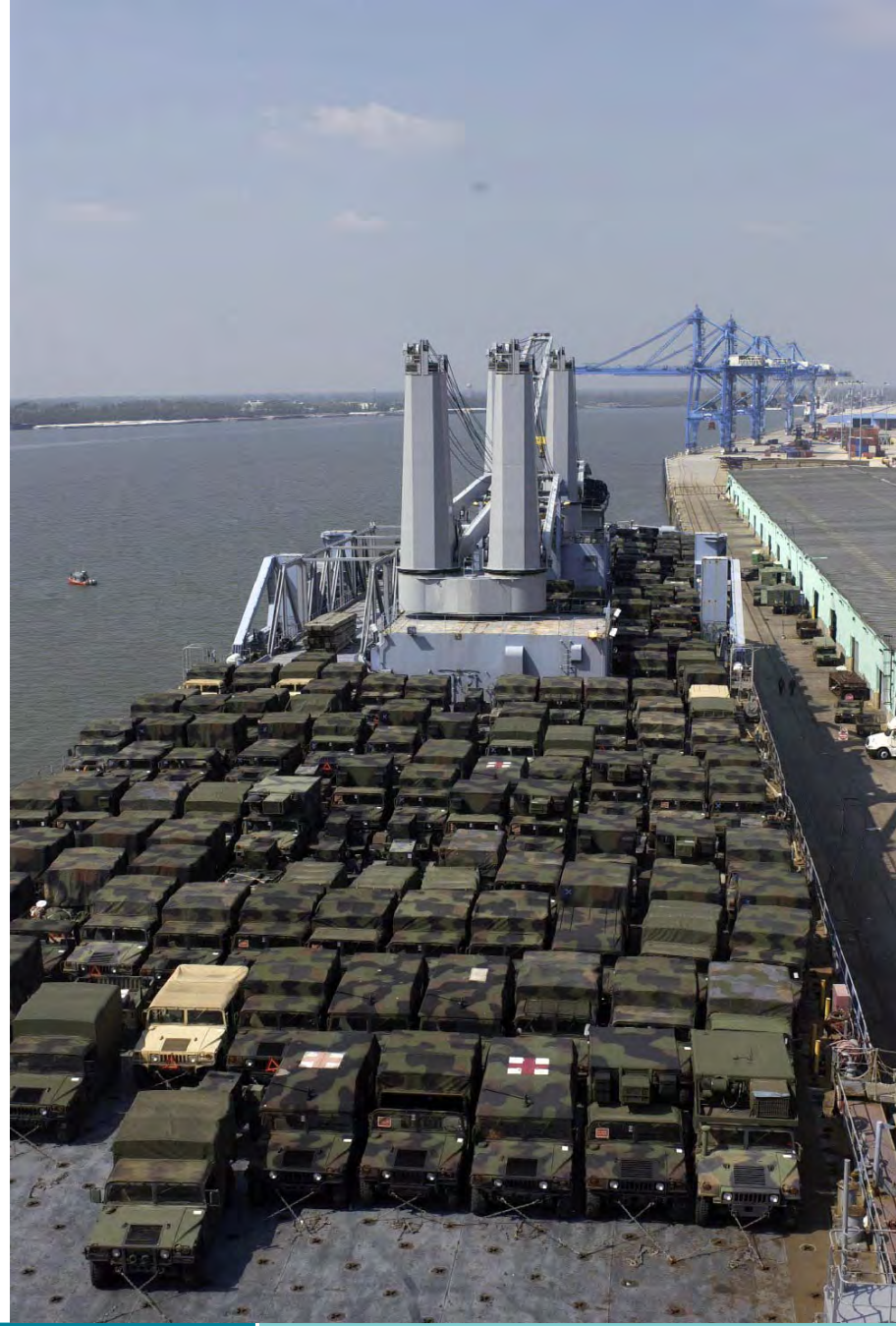
Agility

An integrated network allows customers large and small to “look big” while remaining agile.

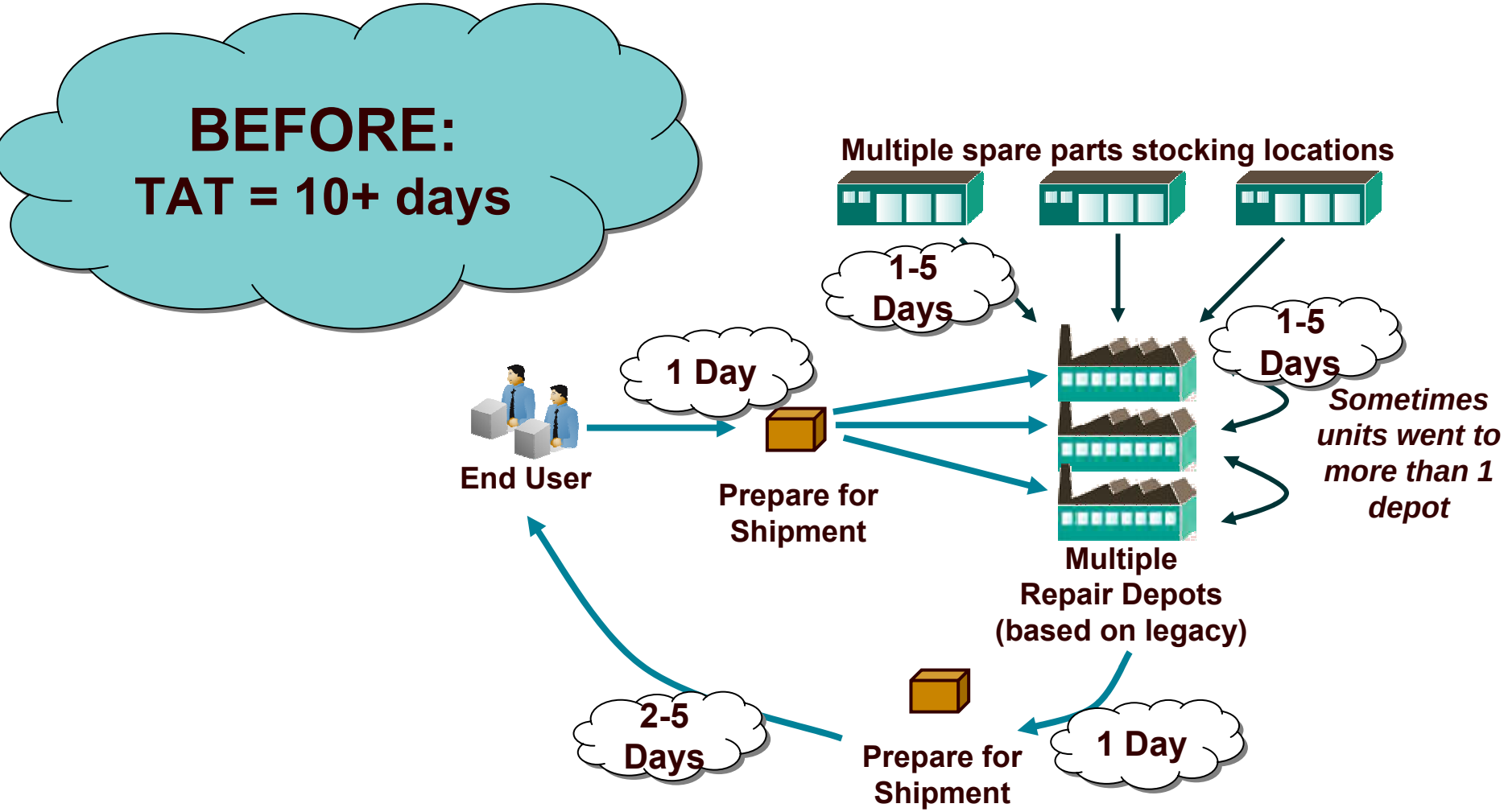


Versatility

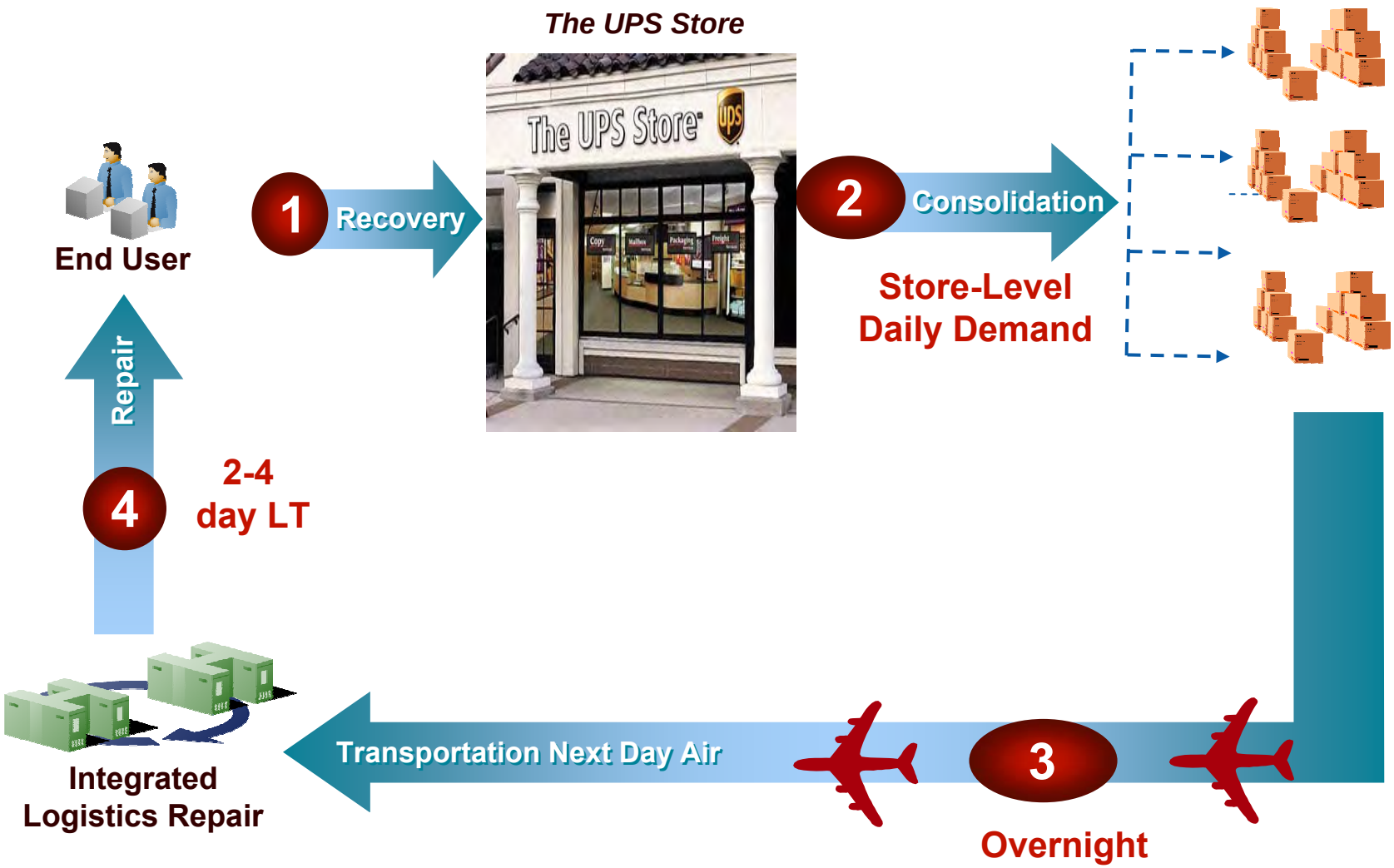
Ability to undertake a variety of missions across the spectrum of operations



A sign of versatility is the ability to move in reverse, as well as forward…



Toshiba's Reverse Logistics Cycle



Toshiba Results

- **Improved integration of pick up and drop off points** by adding 3000+ UPS Store locations
- Improved repair quality - **lowered repeat repair incidents by 41%**
- Faster repair speed - **next business day TAT improved by 17%**
- Improved customer satisfaction - **statistical shift in "delighted" customers**
- Root cause analysis - **improved quality** data feedback design teams

- **Multi-million dollar annual inventory savings**
- Reduced TAT by 2-5 days (or more)
- **Recovery of warranty costs**
- Consolidated authorized service provider network to **optimize inventory and transportation**



Versatility

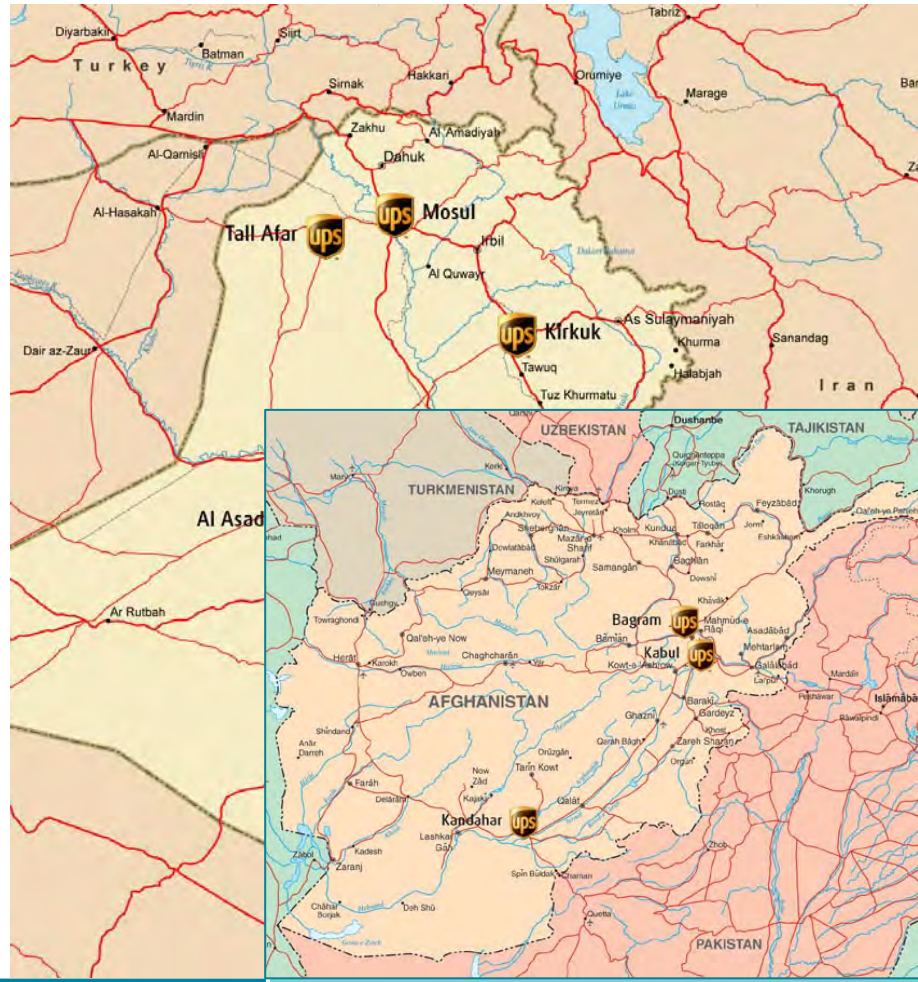
Conditions do not allow for “business as usual” support of customers within Iraq and Afghanistan…

Problems

- No existing footprint
- Ground transportation subject to theft and violence

Solution

- Established an air network to deliver five days / week to key bases (from UAE)



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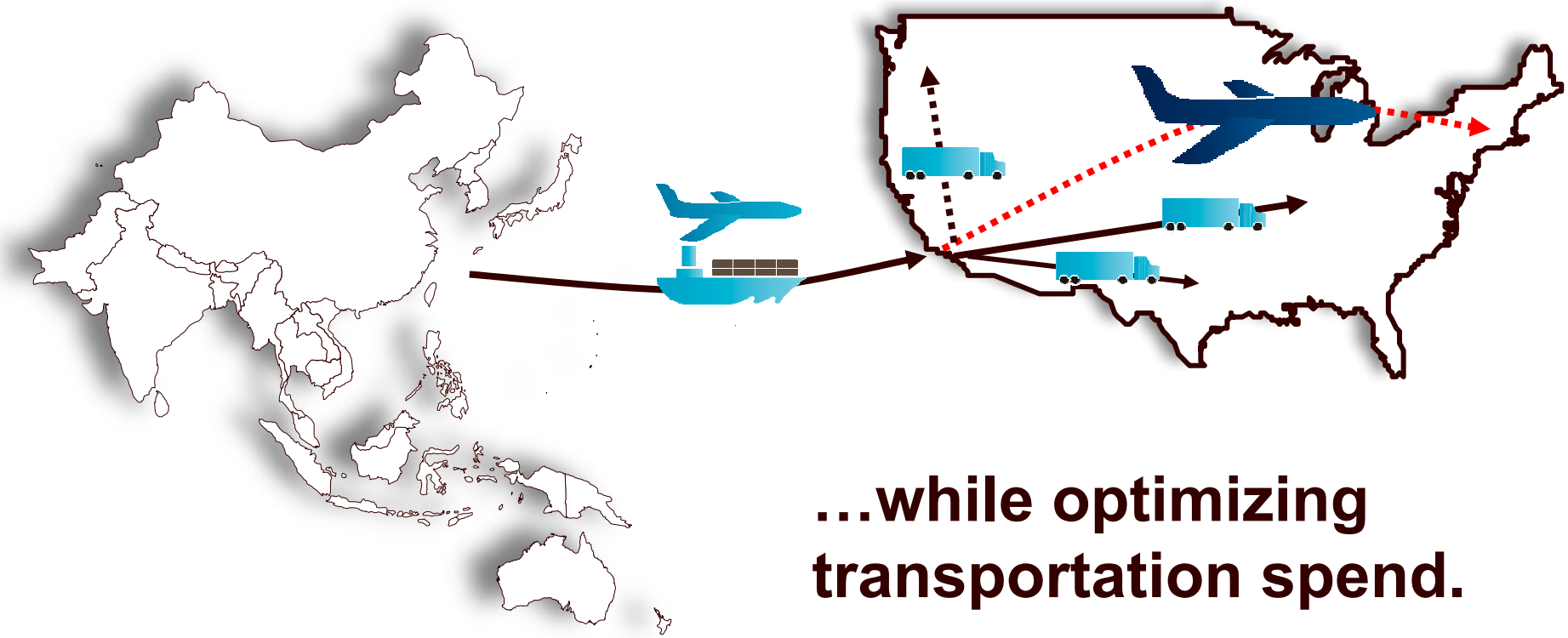
Flexibility

Ability to shift focus rapidly from one mission to an entirely different one, without having to return to bases for refitting or retraining



Flexibility

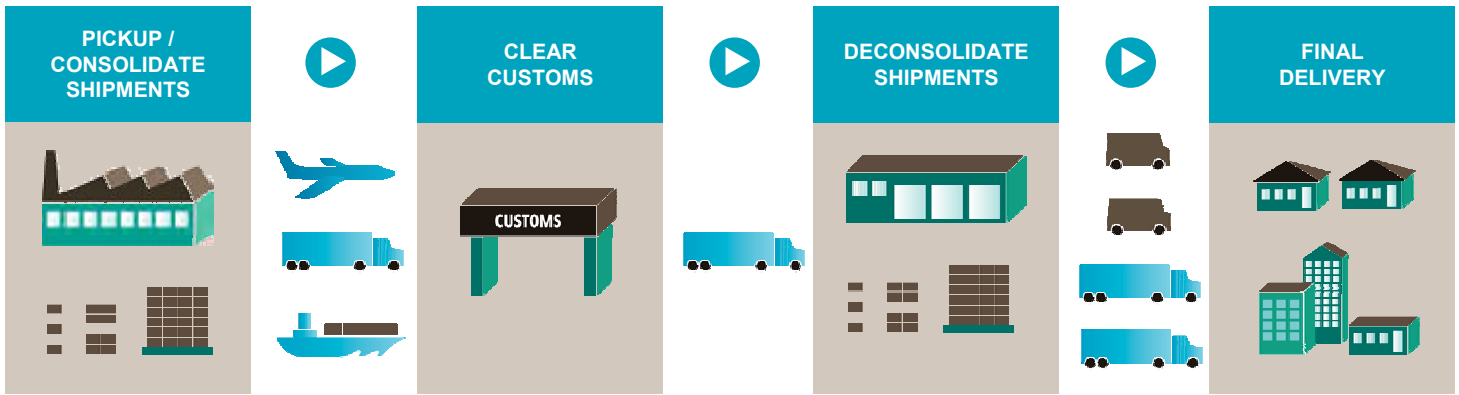
Integrated, yet flexible supply chains allow businesses to match supply and demand through postponement strategies…



…while optimizing transportation spend.

Flexibility
UPS Trade Direct Process Flow

A complete, integrated, multi-modal solution



FULL VISIBILITY: End-to-end tracking provided throughout the supply chain.

Freight and individual packages are picked up and consolidated

Consolidated shipment crosses the border in a single customs clearance

Freight moves via LTL

Packages enter UPS package delivery network

Package and LTL shipments are delivered direct to multiple retail stores and/or end customers

Responsiveness

Forward deployed (or rapidly deployable), enabling swift response with sustainable power



Responsiveness

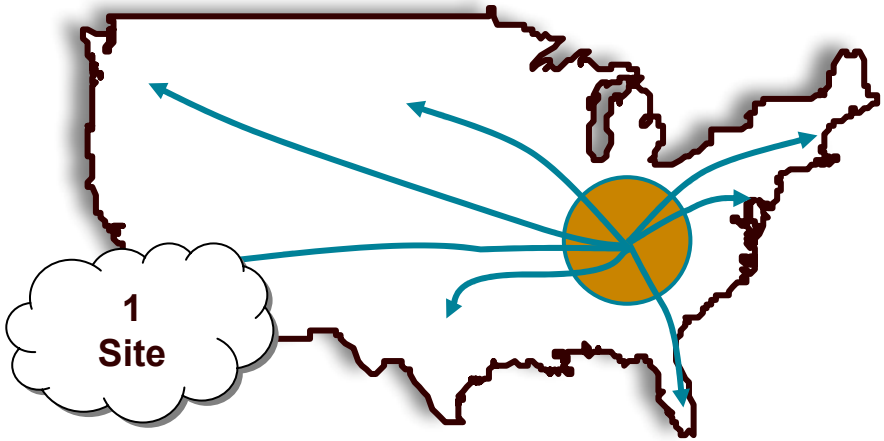
Service levels (A_o requirements) dictate "just in case" inventory requirements…

Network can be continuously rebalanced and aligned based upon historical trends, actual consumption, "op tempo", etc.

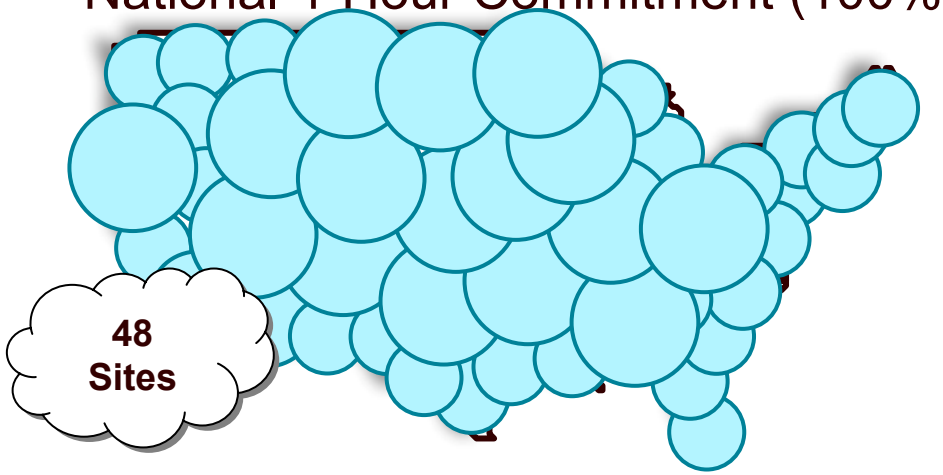


Customer commitments dictate response level…

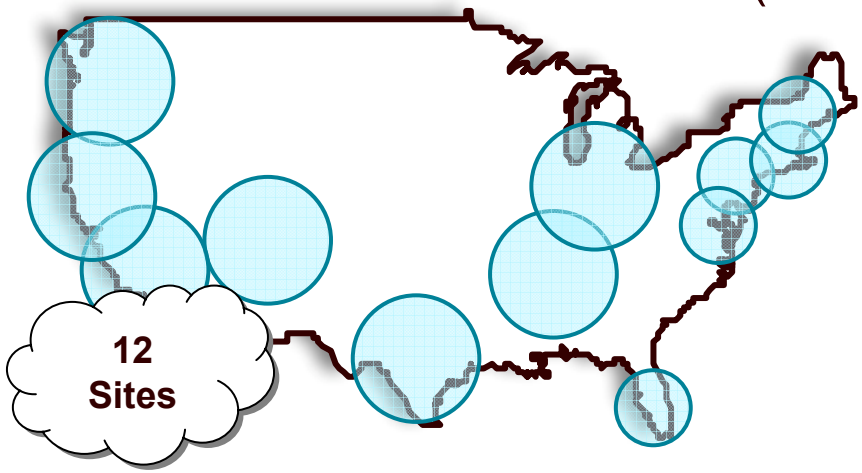
National Next Day Commitment



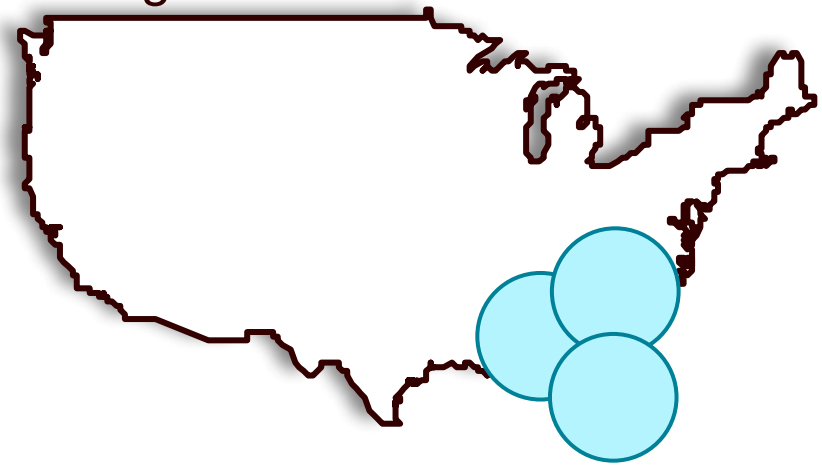
National 4-Hour Commitment (100%)



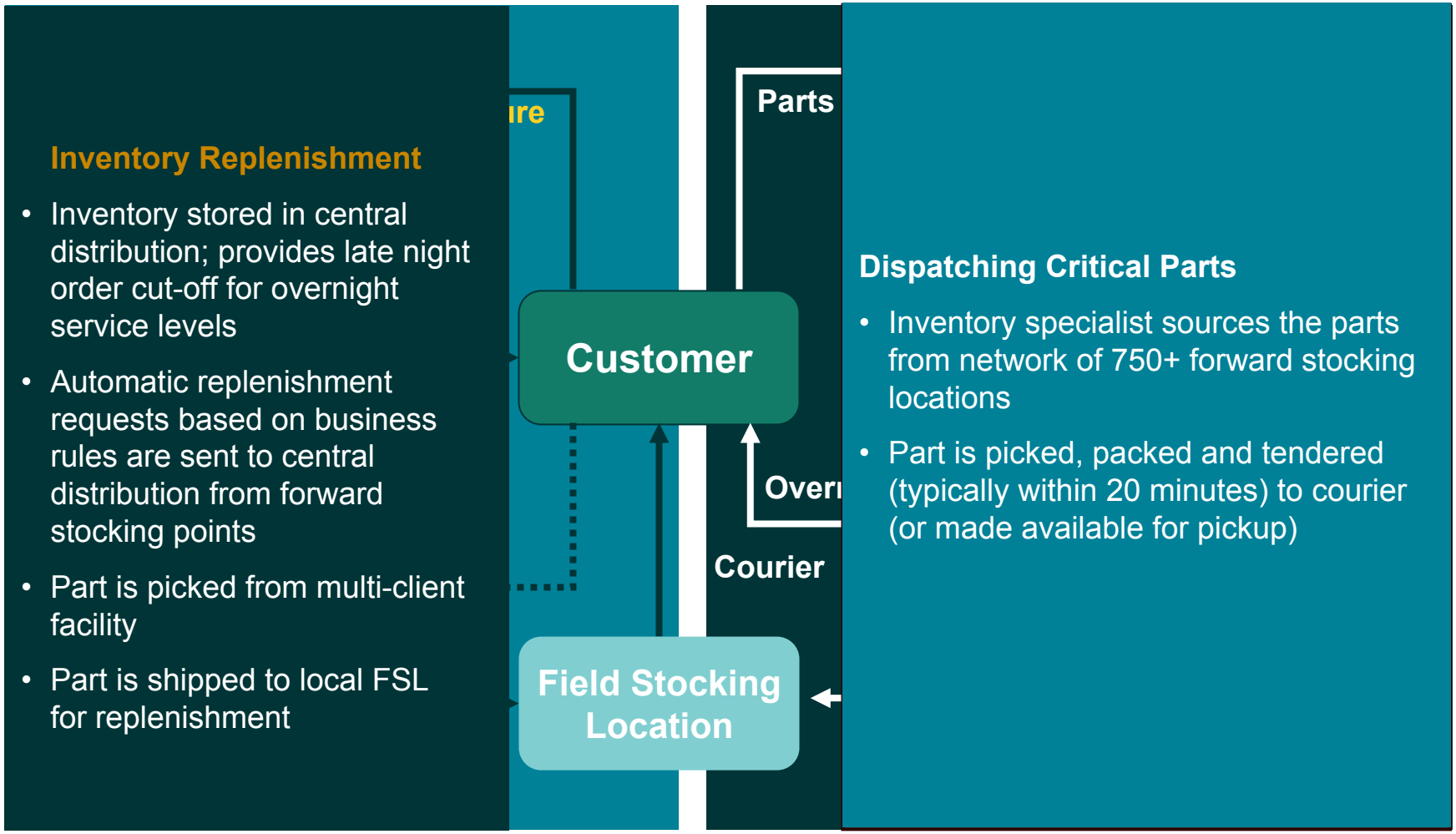
National 4-Hour Commitment (80%)



Regional 4-Hour Commitment



Responsiveness in the Service Parts Logistics Supply Chain



Forcible-Entry Capability

Possessing credible "come-as-you-are" striking power, forces can identify, overcome, and defeat an adversary's access-denial defenses and strategy.



Meeting market demand with value-added services…

Kitting, configuration, and customization

Configurable labels and pack slips

RFID compliance

Refurbishment

Repair and end-of-life services



Sustainability

Ability to continue operations indefinitely (in an austere environment, without host-nation support and without reliance upon pre-existing infrastructure)



Sustainability

Performance Based Logistics

PBL contracts can ensure availability over time, by aligning the goals of all the parties concerned…

Example: Phalanx CIWS program was one of the first uses of PBL and commercial shipping to support a critical defense system – has been in place since 2000

- UPS Louisville receives carcasses from Navy
- Carcasses routed to OEM or repair vendor via UPS (90%) or LTL and returned to stock after repair
- Phase 1: US domestic; Phase 2: Includes international
- Visibility and exception notification provided through Event Tracker / Web Tracker

60 month contract **M-F operation (8a-5p) + after-hours service** **28,000 ft^2 storage** **Volume: ~20 units/day**	**Initial Inventory** **21,981 total parts** **16,400 ready to use parts** **5,581 parts needing repair**



Thank You



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NDIA 10th Annual Expeditionary Warfare Conference

Seabasing Logistics CONOPs





Presented by

Mr. Jonathan Kaskin

Director, Strategic Mobility and Combat Logistics

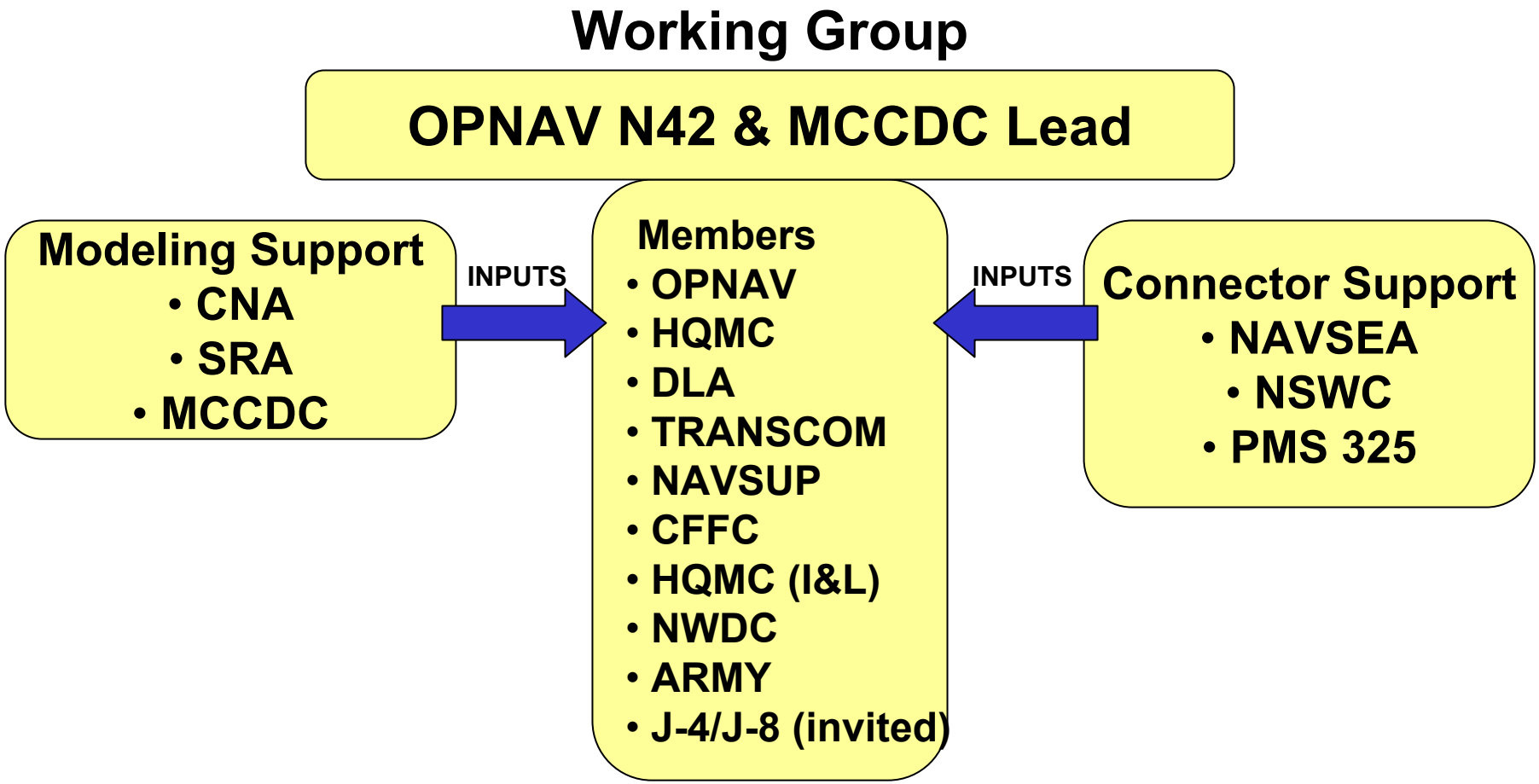
October 2005

Presentation Overview

- Purpose
- Assumptions
- Architecture
- Analysis
- Preliminary Conclusions
- What's Left

MPF(F) Logistics CONOPs

Obtain agreement on MPF(F) Logistics CONOPs balancing capability, cost, and risk.



Assumptions

- 10 DOS is minimum threshold for MPG forces ashore and afloat
- 2200nm to the Sea Base from the Advanced Base
- T-AKE speed of advance of 20 kts
- D-Day, day of MPF(F) assault ashore, occurs at C+15
- Advance Bases can trans-ship dry cargo from strategic sealift onto T-AKEs
- CLF T-AKEs not used to resupply MPG
- MPF(F) T-AKEs not used to support CSG, ESG, or SAGs

Assumptions (cont.)

- T-AKEs are spread loaded
- T-AKEs limited to 12 hours operations/day
- Helos will be available for inter-ship VERTREP
- Heavy UNREP doubles xfer rate of current connected unrep (potential for 4x)
- MV-22 capable of ship to shore VERTREP off T-AKE
- LMSRs and Big Decks (vice T-AKEs) carry Class IX for their maintenance shops (DOS tbd)
- Ammo for fixed-wing ACE aircraft not stored on MPF(F) LHA/Ds

Cargo Capacities and Daily Consumption Rates

	#	Ship Capacities		
		Cargo Fuel (bbls)	Stores (stons)	Ammo (stons)
LHA(R)	2	26,000	410	673
LHD	1	15,000	410	450
LMSR	3	9,057	880	220
T-AKE	3	23,450	1,360	5,140
MLP	3	26,863	460	0
Squadron		245,110	9,330	17,876

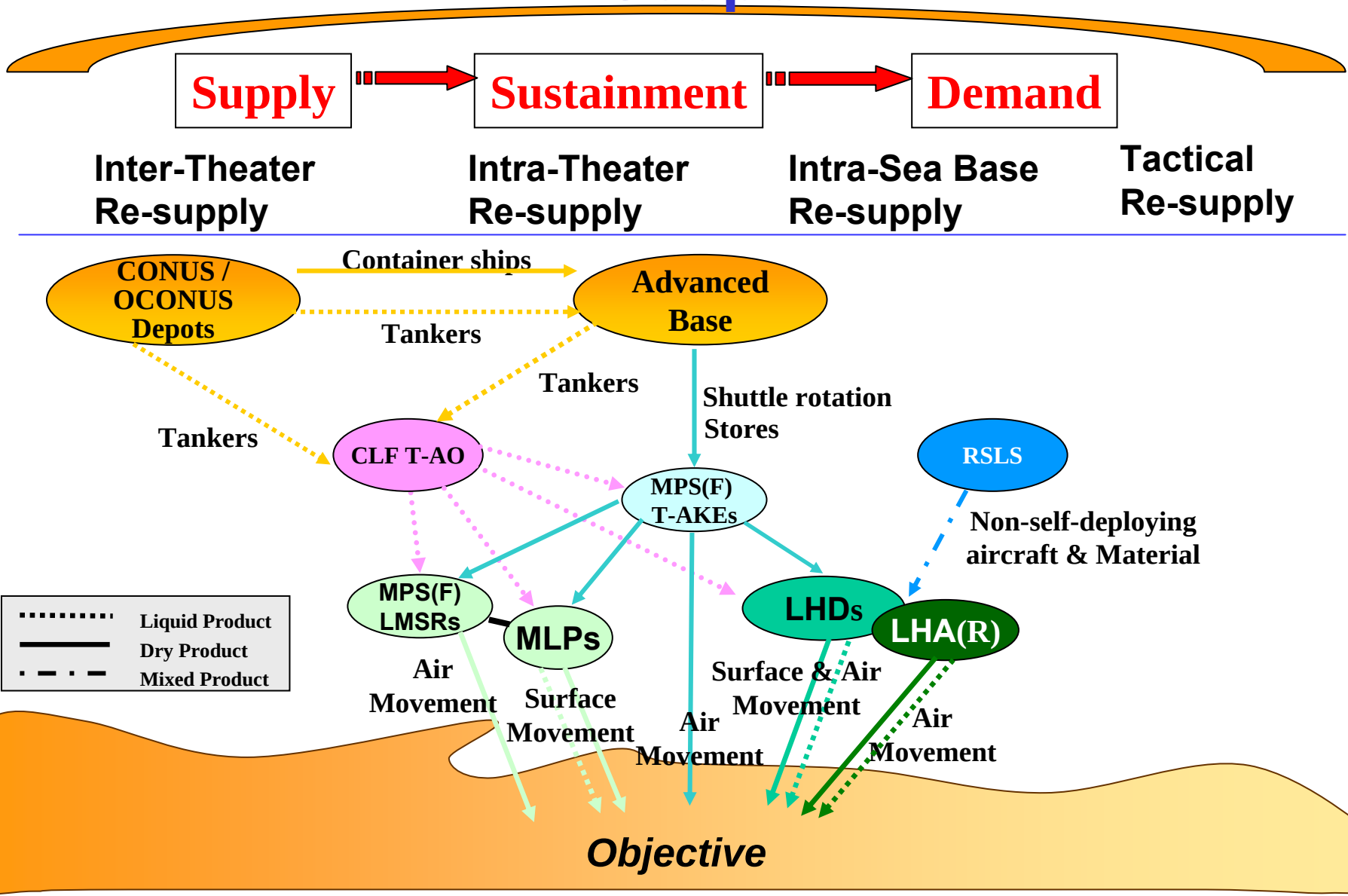
Sustain Daily Consumption

	Class I Stores (stons)	Class III JP5 (bbls)	Class III DFM (bbls)	Class V Ordnance (stons)
MPG	45	5,069	7,056	30
USMC Ashore	20	896	0	112
Army Infantry	14	198	0	30
Army Stryker	16	258	0	75
Army Heavy	12	590	0	250

- Daily MEB sustainment (dry-wet :1/3-2/3) takes ~ 100 MV-22 equivalent external lifts
- Each T-AKE carries a minimum 1050-2500 st Class I/V (5-12 MPG + USMC Ashore DOS per T-AKE)
- MPG + MEB Ashore + Army Infantry Brigade = 251 st /day sustained dry

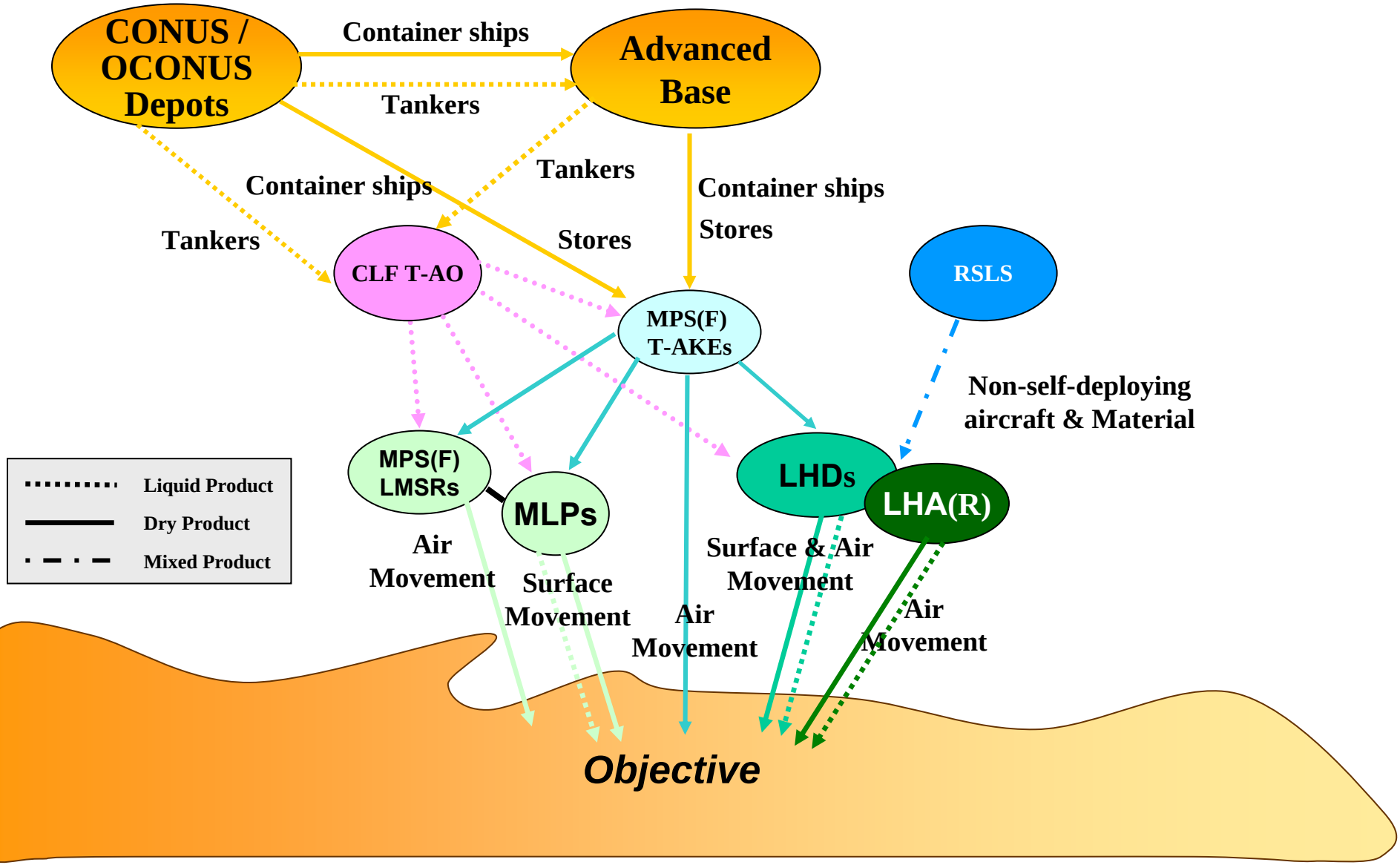
Seabasing Log ConOps

Scope



MPF(F) Squadron

Container Ships Resupply T-AKEs Architecture



Analysis Variables

- Initial Days of Supply on MPG at D-Day
- T-AKEs resupply via shuttle rotation or container-ships at Sea Base
- Percent of total dry goods sent ashore by ship-type (forces inter-ship transfer)
- Heavy/conventional unrep capability
- Number (1 or 2) of T-AKEs in shuttle rotation
- Number of cargo receive rigs (1 or 2) on LHA/D and LMSR
- Forces supported ashore (quantity and type, e.g. 1 MEB and 1 Army Infantry Brigade)

Preliminary Analysis Results for MPG Sustaining 1 MEB (Dry Stores)

DOS			Unrep Rig		Max Ships Away		Cargo Receive Stations on Big Decks/LMSRs		T-AKE Rcv		Adeqaute Unrep resources	Ability to maintain 10 DOS in MPG				Restrictions on Cargo Sent Ashore From Platfrom		
20	30	41	Conv. Unrep	Hvy Unrep	1 Shuttle	2 Shuttle	1 Rcv Sta	2 Rcv Sta	BB	TEU		D+10	D+20	D+30	D+40	T-AKE	LHA/D	LMSR
X				X		X		X	X									
X			X			X		X	X									
X				X				X		X								
X			X					X		X								
	X		X			X	X		X									
	X			X		X	X		X									
	X		X		X		X		X									
	X		X			X		X	X									
	X		X			X		X	X									
	X			X		X		X	X							<.3	>.7	<.2
	X			X		X		X	X							.3<x<.45	.55<x<.7	0
	X			X	X		X		X							<..6	>.4	<.3
	X		X		X			X	X							<..6	>.4	<.3
	X		X					X		X						<1.0	>.35	<.3
	X			X	X			X	X									
	X			X				X		X								
		X	X			X	X		X									
		X	X		X		X		X									
		X		X		X	X		X							<.55	.4<x<1.0	0
		X		X	X		X		X							<..6	>.4	<.3
		X	X			X		X	X							<.45	>.4	<.3
		X	X		X			X	X							<..6	>.4	<.3
		X		X		X		X	X									
		X		X	X			X	X									

DOS, Hvy UNREP, 2 Rcv Sta not TEU is key

Unexecutable **Operational Rest.** **Meets Obj.**

Similar results when add 1 Army Light Brigade

MPF(F) Logistics CONOPs Preliminary Conclusions for 1 MEB

- MPG can maintain threshold of 10 DOS for MEB w/ 3 T-AKEs
- <41 DOS would demand additional prepo ship
- MPG has theoretical Class I/V capacity > 100 DOS
- TEU xfer-at-sea not required
- MPG resupply via a T-AKE shuttle rotation effective
  - Best to keep minimum of 2 on station
- LHA/D single conventional cargo receive rig inadequate
- Heavy Unrep on MPF(F) ships (except legacy MPS) throughput enabler

What's left to do

- Ship-to-shore integration
- Supporting the 2nd brigade
- POL to the sea base
- Refined allocation of supply classes among different MPG classes (including Class IV, VIII, IX, etc.)

Questions?

Number of Daily Re-Supply Lifts
--notional MV-22 external lifts--

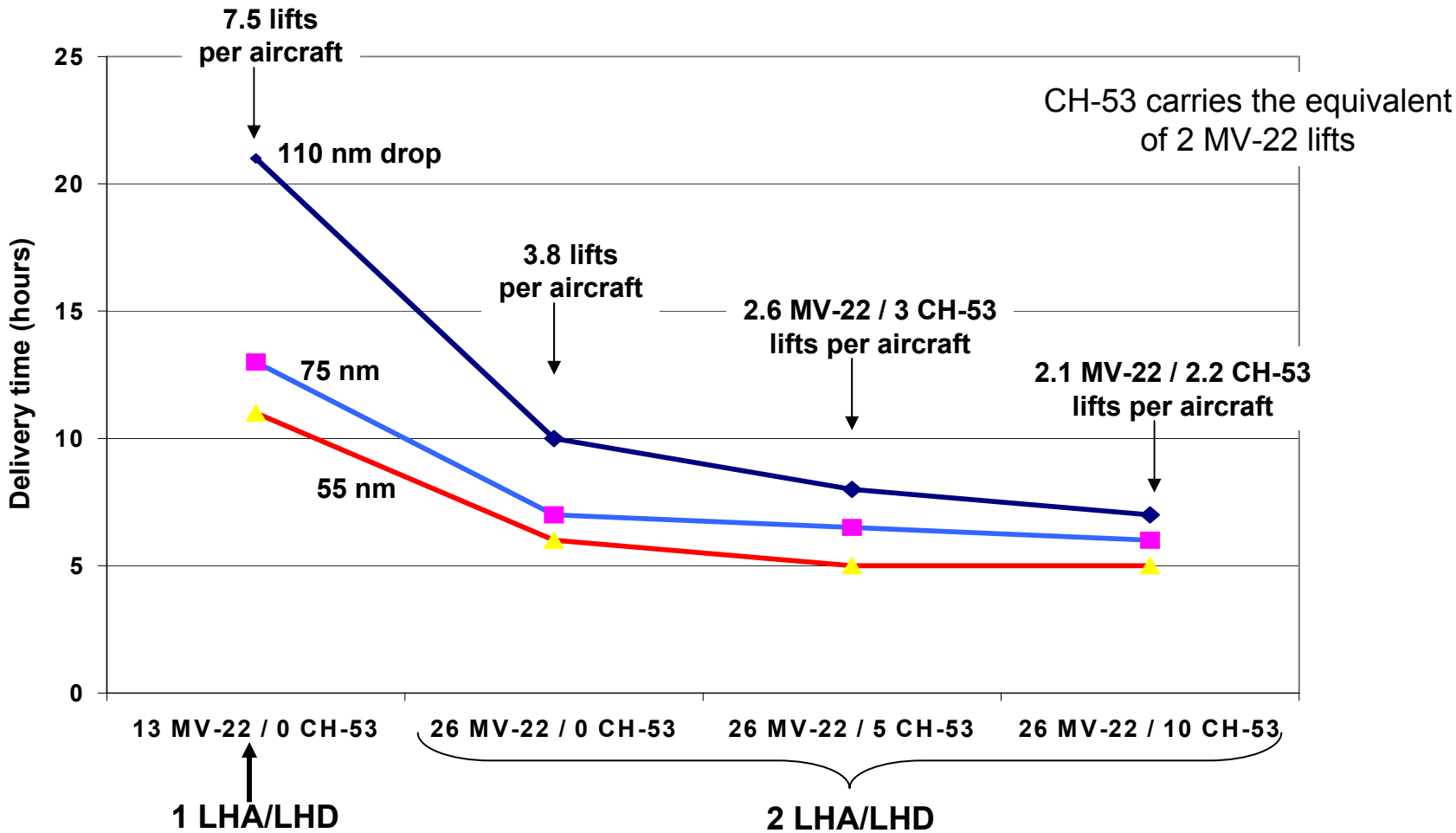
Using max theoretical lift weights for MV-22 lift

	Weight per lift	Surge Day	Sustain Day		Weight per lift	Surge Day	Sustain Day
Ordnance:	4.0 stons	36	28		5.0 stons	29	23
Stores:	3.0 stons	9 – 15	9 – 15		5.0 stons	5 – 9	5 – 9
Fuel:	3.9 stons	50	40		5.0 stons	39	31
Water:	4.2 stons	25 – 42	25 – 42		5.0 stons	21 – 35	21 – 35
Total:		120 – 143	102 – 125			94 – 112	80 – 98

Theoretically smallest possible number of lifts

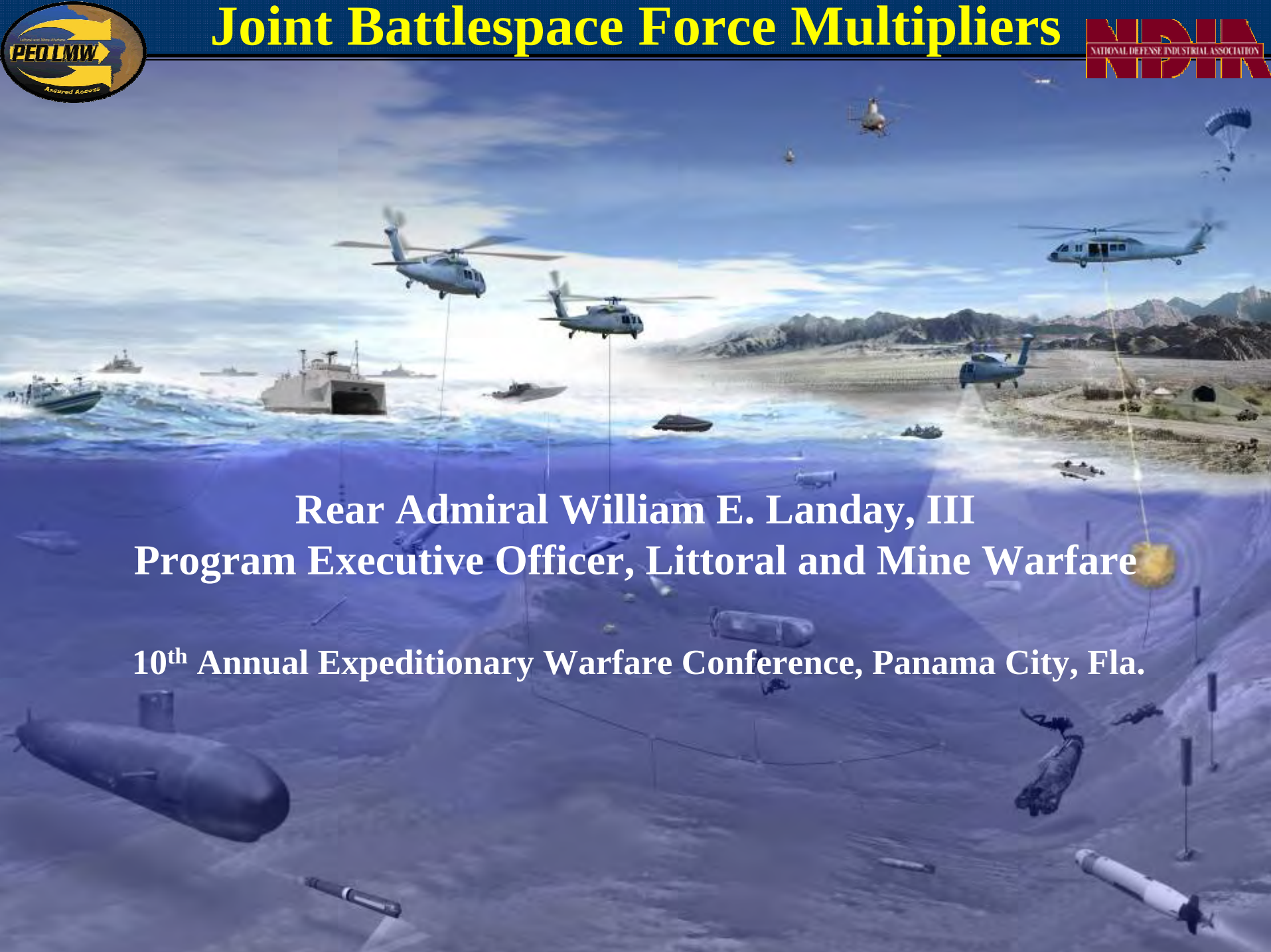
Source: CNA

Time to Deliver 98 External Lifts Ashore



Source: CNA

Joint Battlespace Force Multipliers



Rear Admiral William E. Landay, III
Program Executive Officer, Littoral and Mine Warfare

10th Annual Expeditionary Warfare Conference, Panama City, Fla.

LCS Mission Modules

Integrated Mission Packages



Lockheed Martin

Gibbs & Cox • Marinette Marine • Bollinger Shipyards

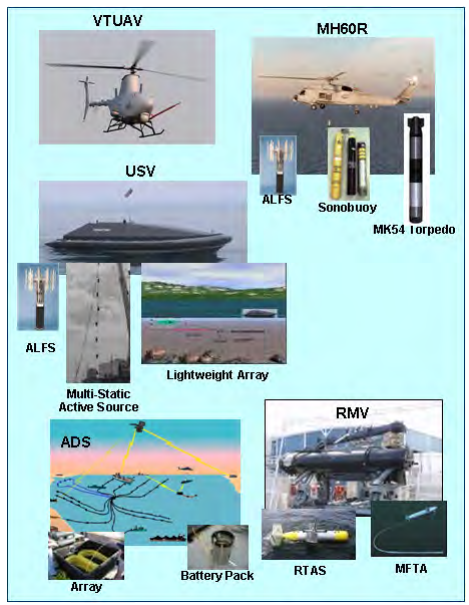


General Dynamics

Bath Iron Works • Austal • BAE Systems • CAE • MAPC



MIW Mission Package



ASW Mission Package



SUW Mission Package

MIW Mission Module Components











AQS-20A

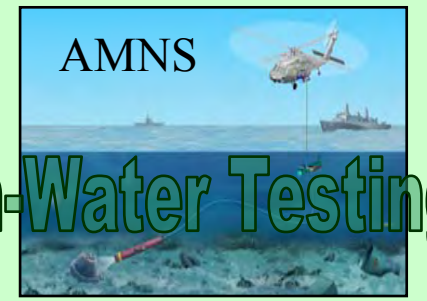






OASIS







ASW Mission Package

VTUAV



IN PRODUCTION!

MH60R



IN PRODUCTION!



Sonobuoy



Mk54 Torpedo



ALFS

In-Water Testing

ADS



In-Water Testing



Array



Battery Pack

RMV



IN PRODUCTION!

RTAS



MFTA



In-Water Testing

USV



In-Water Testing



ULITE



Multistatic Active Source



ALFS

In-Water Testing

SUW Mission Package

VTUAV



IN PRODUCTION!

MH60

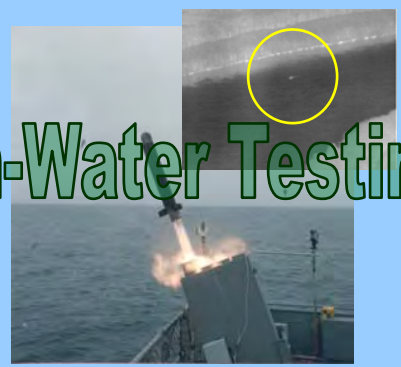


IN PRODUCTION!

2.75in Rockets



IN PRODUCTION!



In-Water Testing

NLOS-PAM

USV (11m RHIB)



In-Water Testing



IN PRODUCTION!

30mm Gun

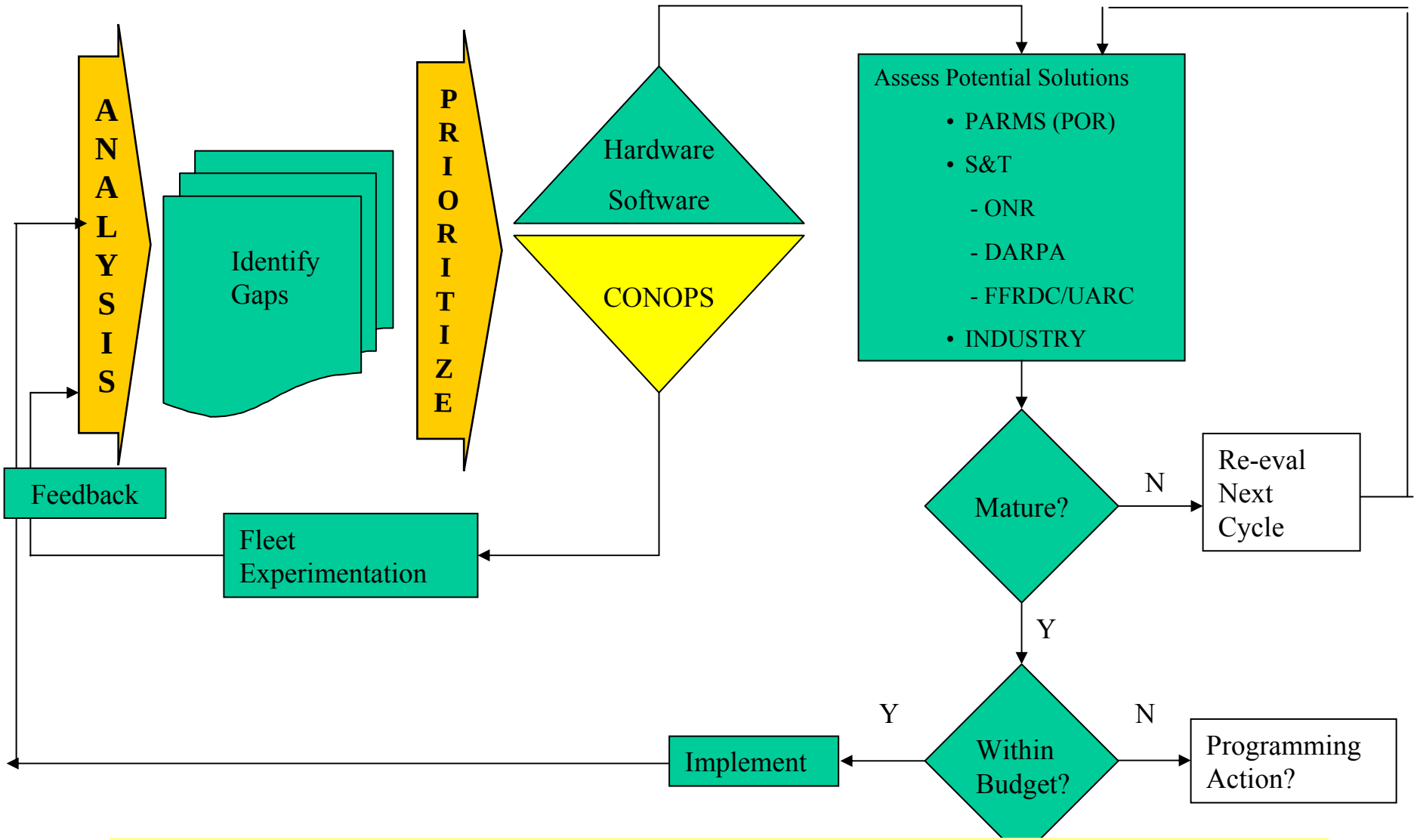


In-Water Testing

Running Gear Entanglement System

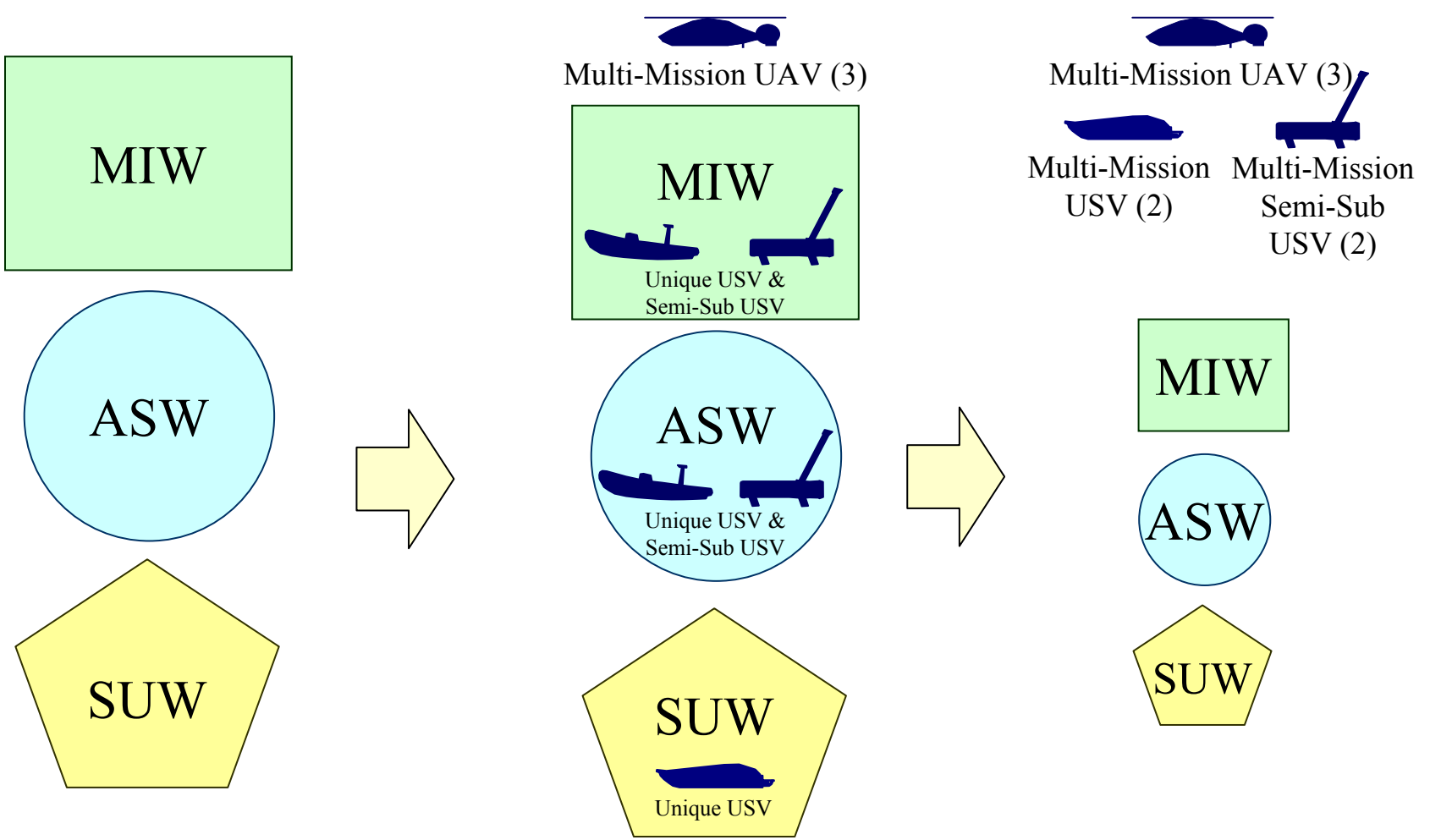
Spiral Development

Annual Process with Goal of Fleet Introduction Every 12-18 Months



Enabling Rapid Introduction of EDMs for UOES in Real World Situations

Moving toward "Common" Multi-mission Vehicles



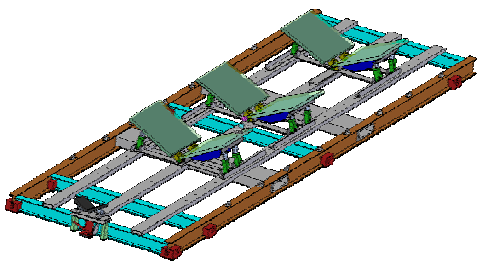
Multi-Mission USV





- **RMS MIW/ASW configured handling**
- **RMS Tow Tests (Wake Effects)**
- **Sea Talon ACTD (ASW Systems)**
- **SPARTAN ACTD (MIW & ASW Systems)**
- **JUSC2 ACTD (Unmanned Vehicle Control)**

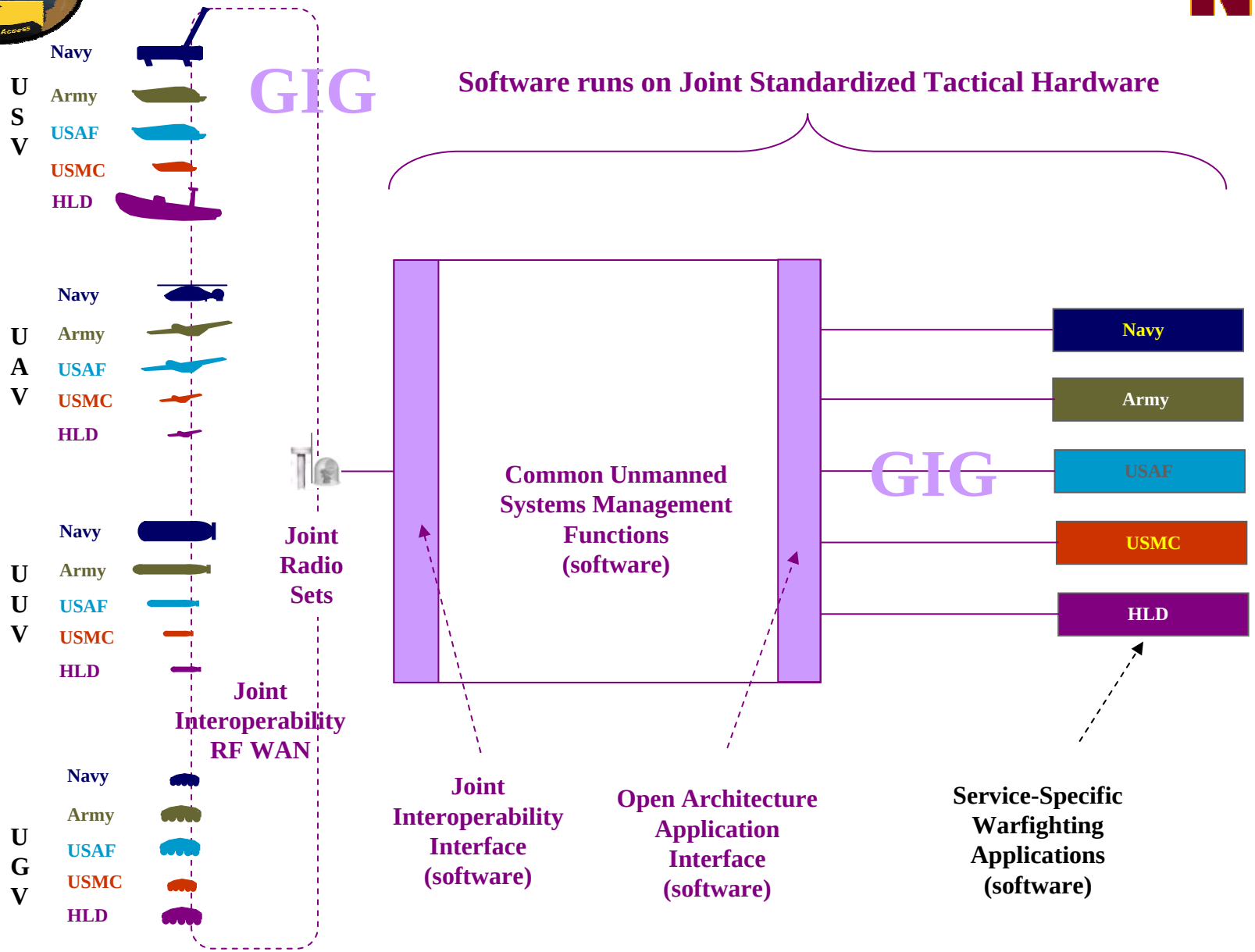




LCS-1 USV Cradle Design



Endgame Vision for Common Control of Navy Unmanned Systems



C2 Standardization through NATO STANAG 4586 and JAUS

Joint Force Multipliers

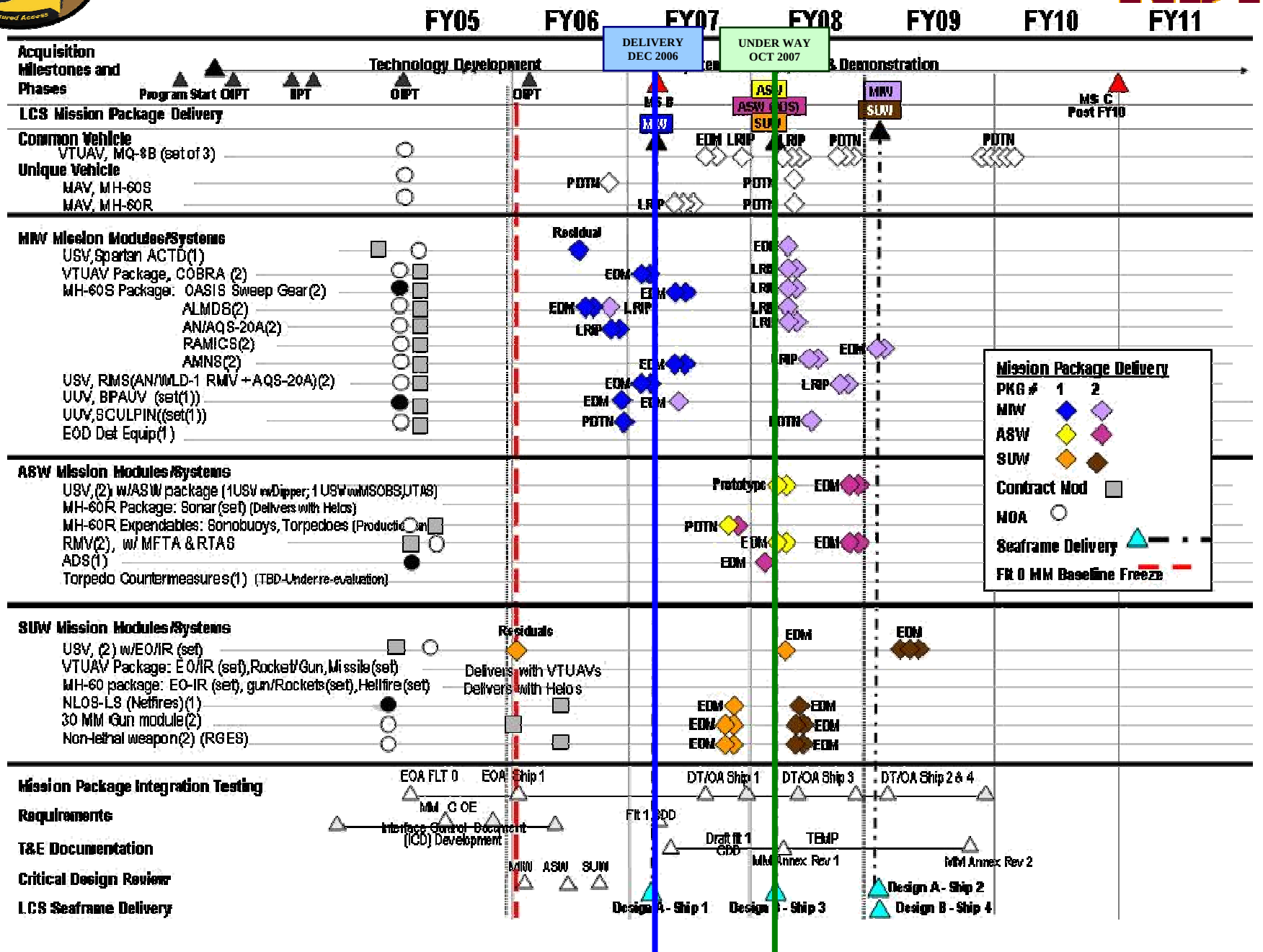
Mission Module Flexibility

12-18 Month Development Spirals

Integrated Family of Unmanned Vehicles

Joint Standardization of Unmanned Vehicles, Payloads and C2 Architectures

Mission Modules Flight 0 Master Schedule (PB'06)



Sustaining the Seabase a View…

Mr. Nick Linkowitz
HQMC/LPV
26 Oct 2005

LOGISTIC PLANNING

"The Logistician draws the line beyond which the Tactician cannot go."

Sustaining the Force

- *Upon, through, & from…the Sea Base*
- Common & Interoperable Procedures/Policies
  - **Service, Maritime (Naval), Joint**
- Move to better Common Packaging
  - As Accompanying Supplies
  - As Resupply
- The Maritime Environment…

Logistics & Sea-Basing

The logistics demand for forces ashore is reduced while leaving certain functions at sea by:

- **Streamlining what is taken ashore**
- **Remotely monitoring vehicles & equipment**
- **Total visibility of logistics assets across naval & joint logistics**

Being

Effective *over* Efficient

Future Sea-Basing Operations

Sea-Basing contributes to increased operational tempo by increasing speed, mobility, and maneuverability while decreasing or eliminating operational pauses.

- **These changes in our concepts and capabilities for fire and maneuver will demand changes in the methods we use to sustain naval forces.**

- **Being developed as part of the Marine Corps' *Logistics Modernization* effort in conjunction with *Naval Logistics Integration* & *MAGTF Logistics Integration*.**

Defense Science Board
Task Force

on

SEA BASING



August 2003

Office of the Under Secretary of Defense
For Acquisition, Technology, and Logistics
Washington, D.C. 20301-3140

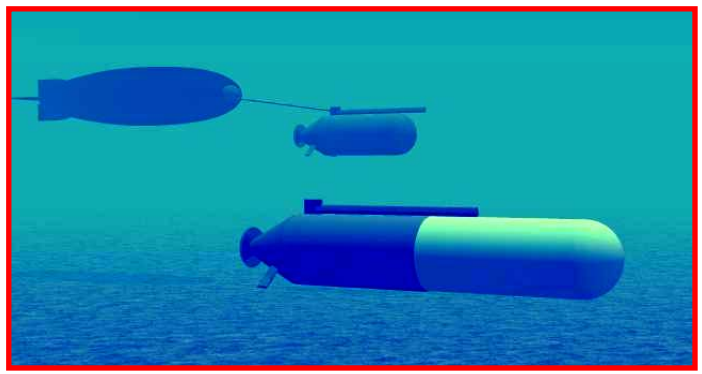
Logistic Resupply must be Flexible





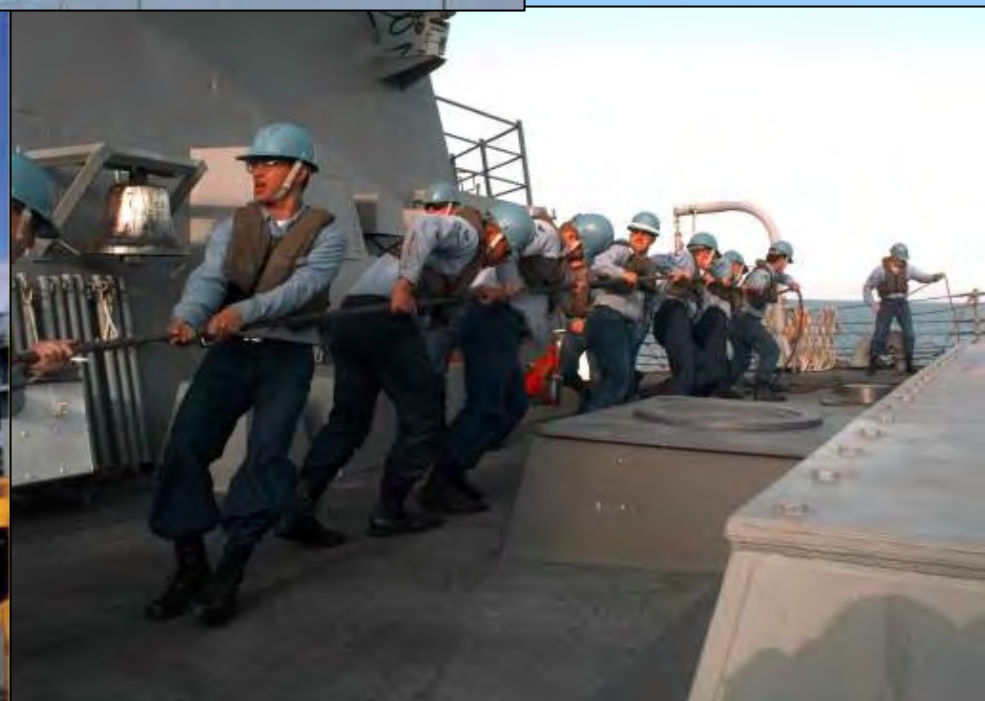




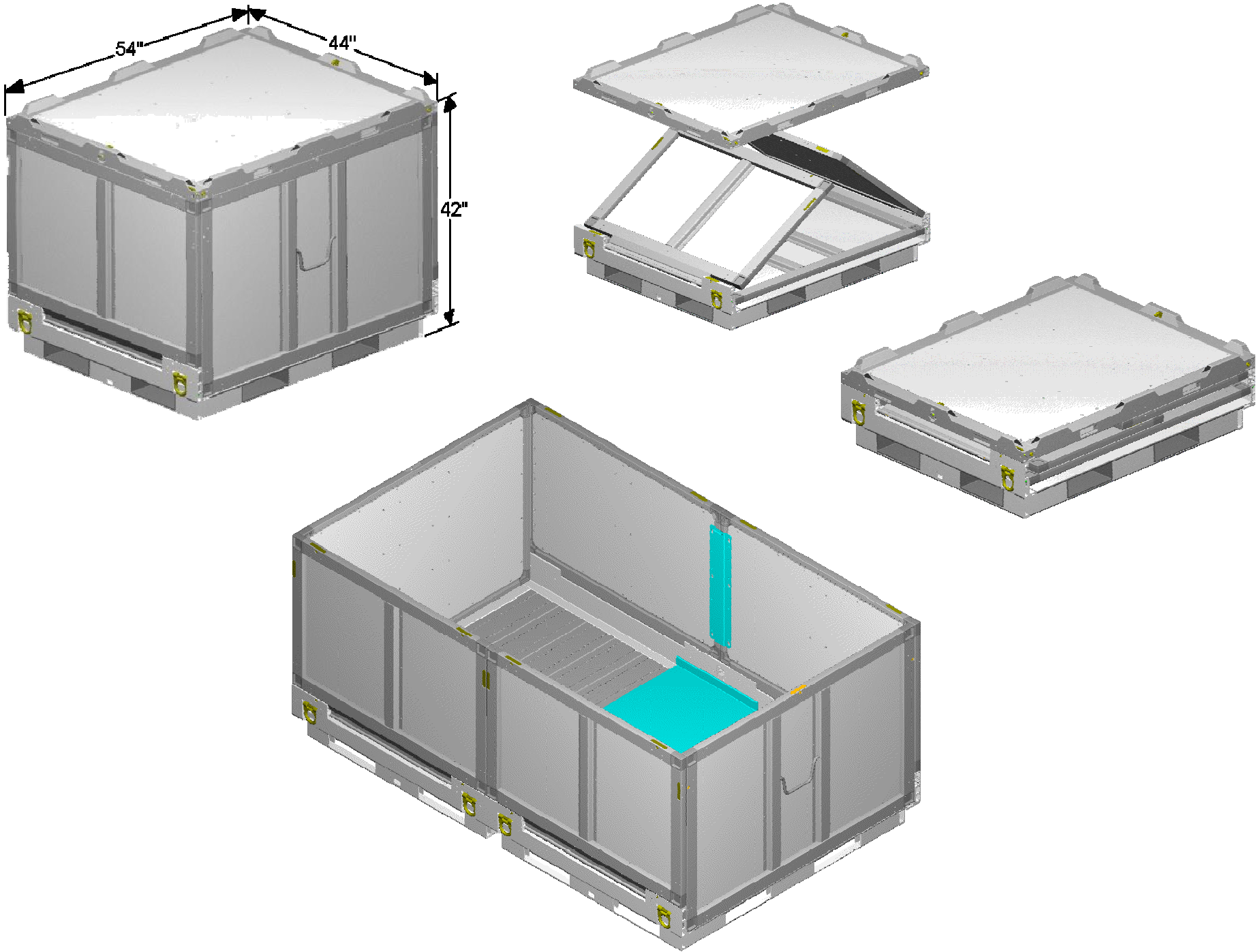









KEARSARGE


54"
44"
42"






21 March 2005

MEMORANDUM FOR THE OFFICE OF SECRETARY OF DEFENSE, CHAIRMAN JOINT CHIEFS OF STAFF, SERVICES, COCOMS, ACQUISITION COMMANDS, AND AGENCIES

SUBJECT: Joint Common Packaging / Containerization

Lessons relearned during OEF, OIF, and other current operations have reinforced the need for a standardized approach for packaging and containerization. To achieve this, we agree a common approach and set of standards must be adopted as quickly as possible. Common containers reduce cargo handling which results in faster distribution with less in-transit losses.

We recommend Commander, United States Transportation Command, as the Distribution Process Owner, coordinate and develop common joint packaging and containerization standards and that the already functioning Joint Intermodal Working Group serve as the action agency for this effort. The Joint Modular Intermodal Container (JMIC) concept, initially developed for ammunition but now broadened to include all classes of supply, is an example of a common modular package that can move throughout the Defense Transportation System (DTS). As a potential end-to-end packaging solution

Rapid Equipping Force Streamlined Acquisition Process

Joint Expeditionary Forces – Winning Today and Tomorrow

27 October 2005

COL Robert A. Lovett
Project Manager
Rapid Equipping Force

Purpose

The Rapid Equipping Force (REF) exists to meet immediate/urgent Warfighter requirements. It is an operational organization with a significant acquisition capability.

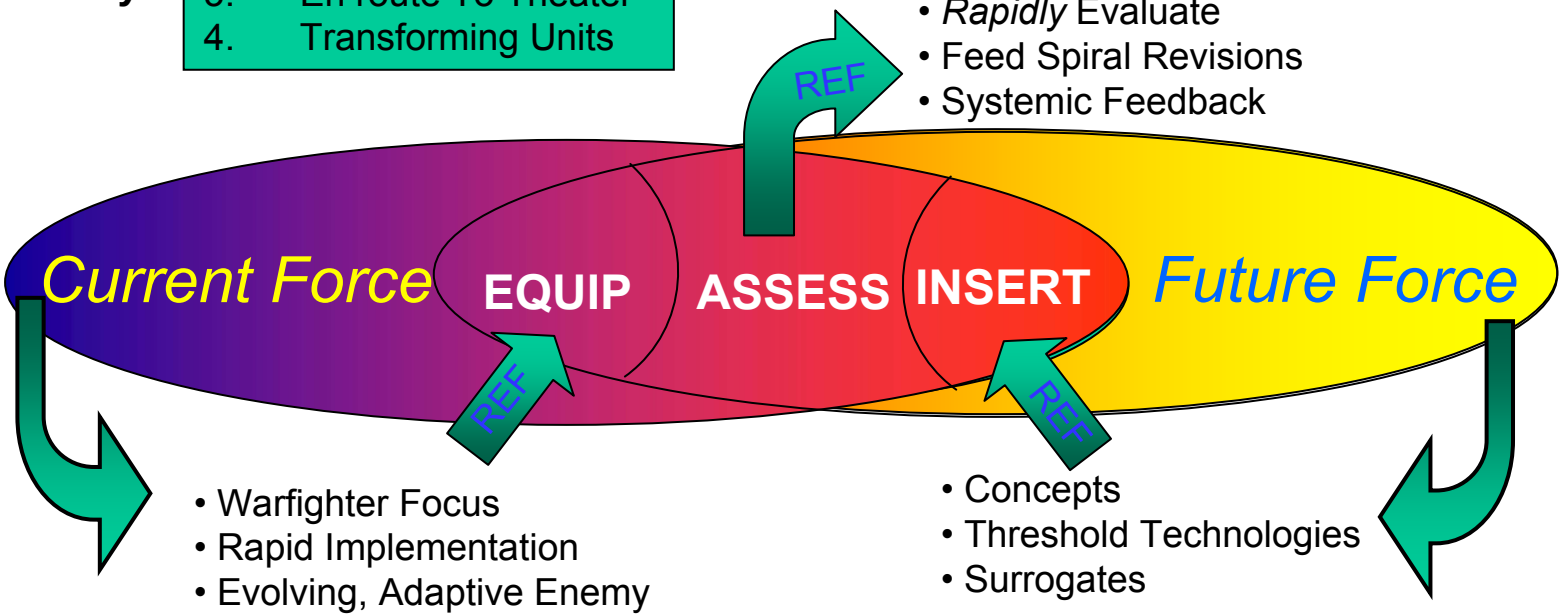
Training + Technology = Capability

***"All efforts at the REF must serve to improve mission capability while reducing risk to our soldiers."*— Chief of Staff, GEN Peter J. Schoomaker**

CSA's Guidance

Support to the Army:

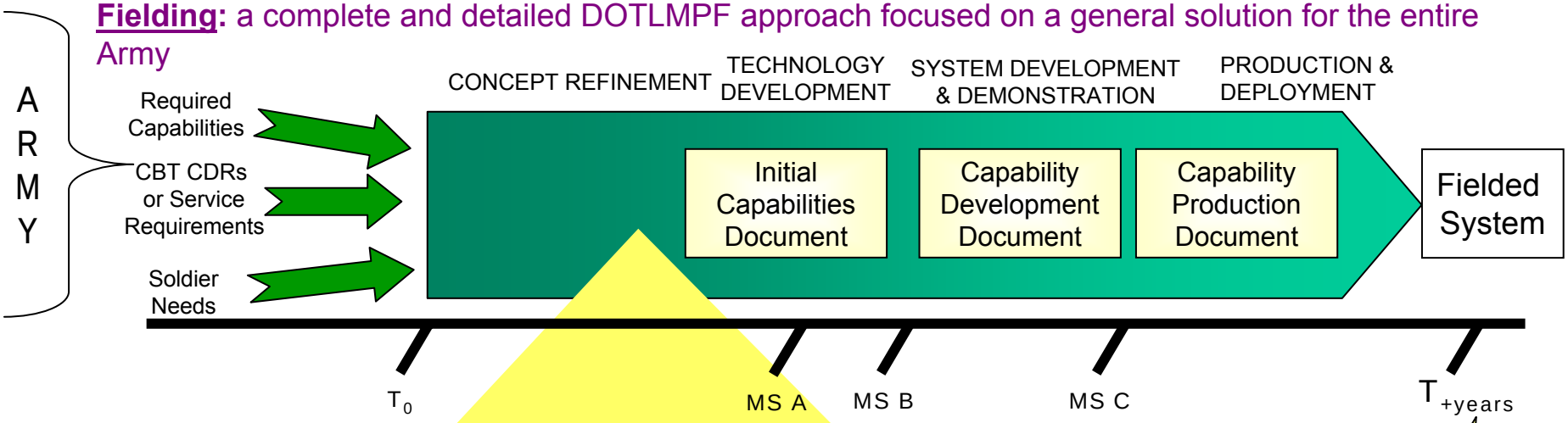
1. JIEDD-TF
2. In Theater
3. En route To Theater
4. Transforming Units



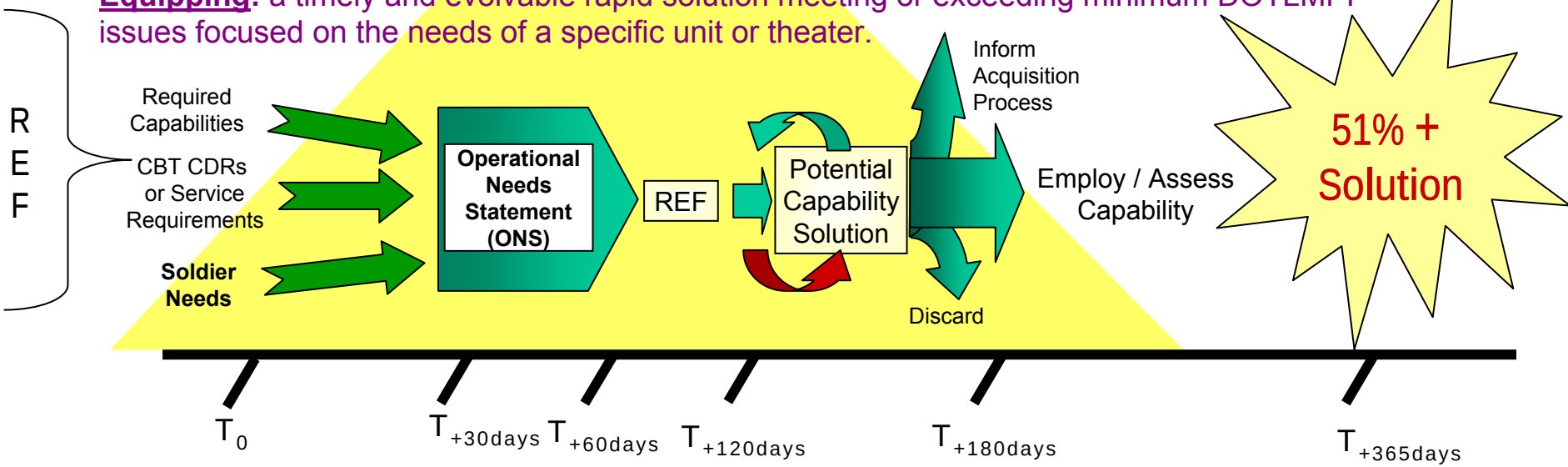
Mission: Provide <u>operational commanders</u> with rapidly employable solutions to enhance lethality, survivability and force protection through insertion of COTS-GOTS (Equip) and Future Force technologies (Insert) while informing Army stakeholders (Assess) to remain ahead of an adaptive enemy.

Fielding vs. Equipping

Fielding: a complete and detailed DOTLMPF approach focused on a general solution for the entire Army

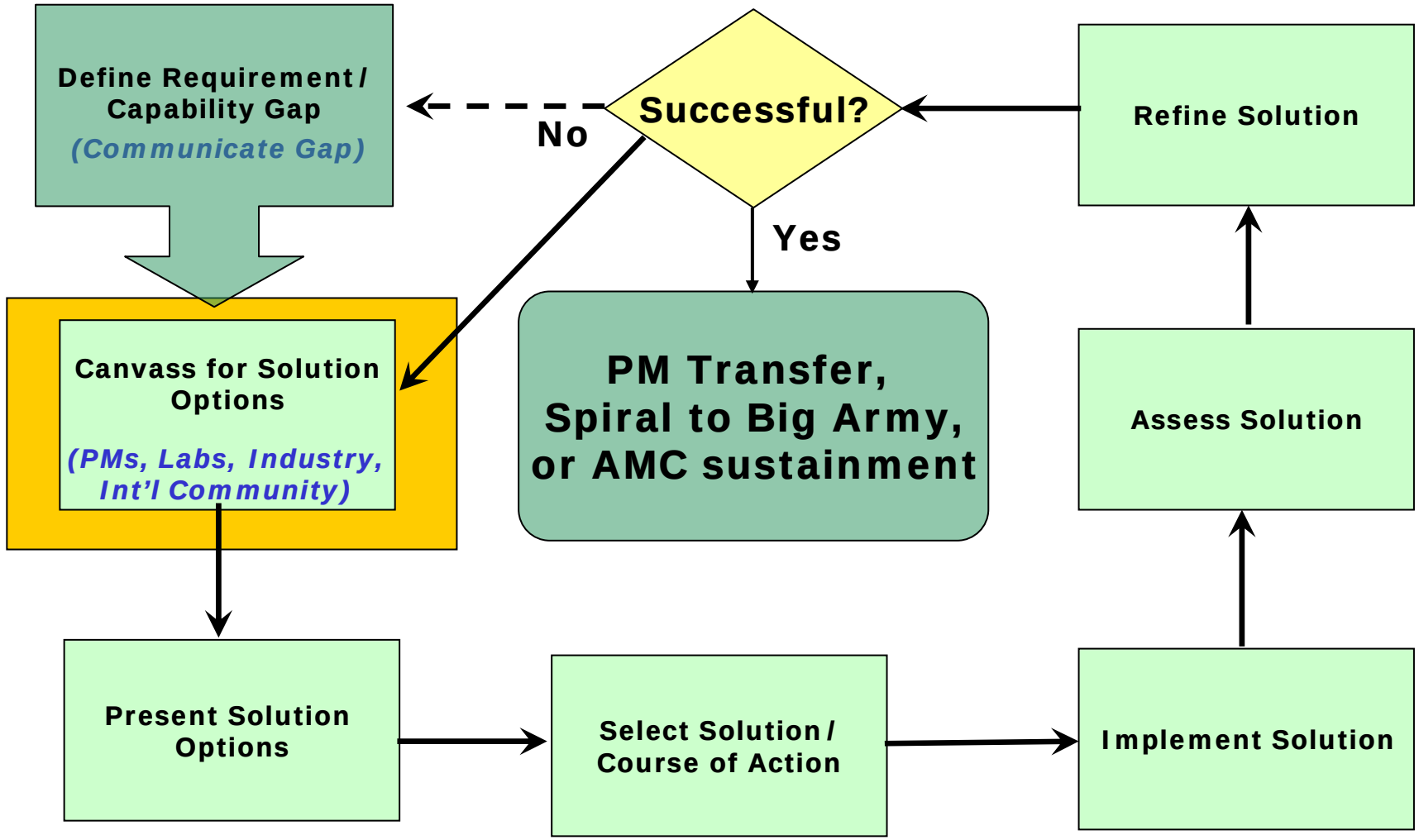


Equipping: a timely and evolvable rapid solution meeting or exceeding minimum DOTLMPF issues focused on the needs of a specific unit or theater.



**DOTLMPF – 7 components – Doctrine, Organization, Training, Leadership, Materiel, Personnel, and Facilities

REF Process


Define Requirement / Capability Gap
(Communicate Gap)
No
Successful?
Refine Solution
Yes
Canvass for Solution Options
(PMs, Labs, Industry, Int'l Community)
PM Transfer, Spiral to Big Army, or AMC sustainment
Assess Solution
Present Solution Options
Select Solution / Course of Action
Implement Solution

REF "Uniqueness"

- Money
- Operational Contact Teams in Theater
  - OEF (1 Team – 3 Soldiers+)
  - OIF (4 Teams – 12 Soldiers+)
- Success Not Mandatory
- Schedule Driven
- Linked to TRADOC Spiral Division

REF Projects (PMs/Industry)



Toughbot / RS JPO
OmniTech International



LRAD / PM CCS
American Tech Corp



TACMAV / PM UAV
ARA International



Wellcam / PM NV RSTA
Exponent



SpeechGuard / PM Prophecy
Ectaco



AAGMV / PM LTV
Armorworks, MSG, Inc.



FN303 / PM Non Lethals
FNH USA, Inc



Marcbot / RS JPO
Exponent, Inc

REF Priorities

- Counter - IED
- Counter - VBIED
- Counter - RAM
- Counter - RPG
- General Convoy Protection
- Base Protection
- Small Unit Comms
- Other Force Protection
- Long Term Technology

Questions?

REF Access Points

COMMERCIAL: 703-704-2593
E-MAIL: ref.operations@belvoir.army.mil

NDIA SEABASING STUDY

LOGISTICS SECTION

Mr. Robert Luby, Jr.
IBM Global Services
Vice President, SCM Public Sector Leader

Inventory Optimization

- Tools offered in the marketplace that address inventory inefficiencies include: LogicTools, Optiant, SmartOps, Tools Group, and IBM DIOS
- Determine the optimal levels of supply and safety stock to have on-hand to meet:
  - service level requirements
  - lead time requirements
  - financial budgeting constraints
  - batch size restrictions.
- Solutions typically help companies forecast inventory demands with a greater degree of accuracy

Supply Chain Event Management



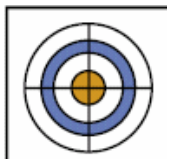
Supply chain visibility allows end-to-end visibility of all supply chain transactional event and performance information.

Aligned measurements are consistently and continuously measured throughout the end-to-end supply chain.

Event management is the ability to detect exceptions in business processes and alert affected parties to drive resolution in real time proactively.

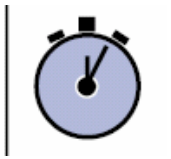
Adaptive planning & execution consists of proactively monitoring and observing ongoing supply chain information to identify potential “out of tolerance” situations and to respond intelligently.

Enterprise of the Future



Focused

On-time delivery- Making sure the right quantities of products arrive at the right locations. This includes swift and predictable order to delivery cycles



Responsive

Flexibility- to accommodate continuous change in customer requirements based on actual warfighter demand.



Variable

Total Visibility- Modernized logistics information systems will enable integrated supply chains, total joint asset visibility and dynamic pipeline control.



Resilient

Sense and Respond Value Net Optimization is game changer that extends SCEM capabilities by integrating business intelligence and collaboration with process automation and optimization.

NATIONAL DEFENSE INDUSTRIAL ASSOCIATION
STRENGTH THROUGH INDUSTRY & TECHNOLOGY

-END-

EWO
EXPEDITIONARY WARFARE DIVISION

NDIA 10th Annual Expeditionary Warfare Conference

Seabasing Logistics





Presented by

VADM Justin D. McCarthy, SC, USN

Director, Material Readiness and Logistics

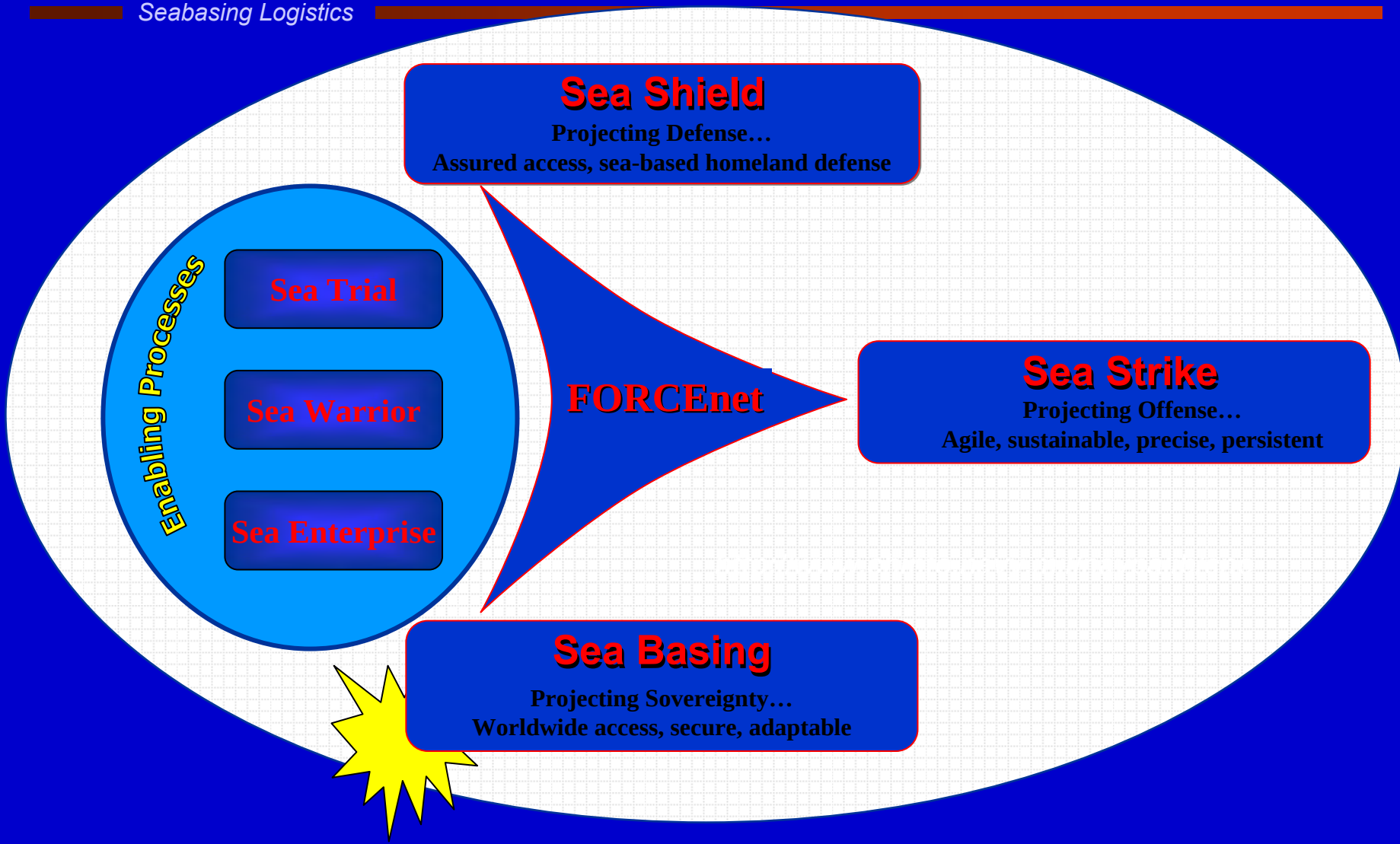
25 October 2005

Overview

- Seabasing Background
- Seabasing Overview
- **Logistics challenges**
- Summary

Sea Power 21

Seabasing Logistics



Seabasing Foundation

Seabasing Logistics

A joint capability

- Defense Science Board Study

  "…Seabasing will be a critical future joint military capability for the United States." *AUG 2003*

- National Defense Strategy

  "DOD is changing… placing more emphasis on the ability to surge quickly to trouble spots across the globe, and making U.S. forces more agile and expeditionary. The new challenge is to project joint power more rapidly to confront unexpected threats." *SECDEF 17 FEB 2005*

- QDR
- Naval Transformation Roadmap

"We are developing joint sea bases that will allow our forces to strike from floating platforms close to the action, instead of being dependent on land bases far from the fight." *President George W. Bush 2005 USNA Commencement Address*

Seabasing Principles

- Use the sea as maneuver space
- Provide joint forcible entry capability
- Provide scalable, responsive joint power projection
- Sustain joint operations
- Leverage forward presence
- Create uncertainty for adversaries



…From the sea


OBJ
FBHL
FBHL
This is not
Seabasing!

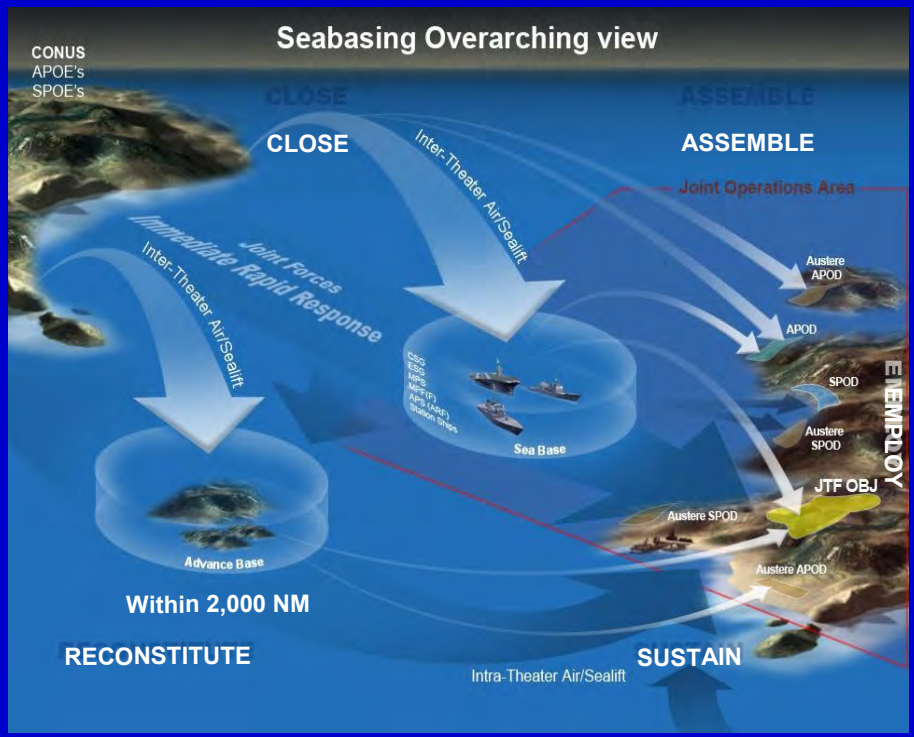


Nor is this! (Popular Science, April 2003)


Seabasing Overarching view
CONUS
APOE's
SPOE's
CLOSE
ASSEMBLE
This is!
Joint Operations Area
Inter-Theater Air/Sealift
Immediate Rapid Response
Joint Forces
Inter-Theater Air/Sealift
Austere APOD
APOD
SPOD
Austere SPOD
EMPLOY
C5/G
E-5G
MPS
MPF(F)
APS (ARF)
Station Ships
Sea Base
JTF OBJ
Austere SPOD
Austere APOD
Advance Base
Within 2,000 NM
RECONSTITUTE
SUSTAIN
Intra-Theater Air/Sealift

Seabasing Overview

Seabasing Logistics



Close Within 10-14 days of execution order

Assemble

Joint capabilities within 24-72 hours of arrival

Employ At least one brigade over-the-horizon AND within one period of darkness (8-10 hrs)

Sustain **At least two joint brigades** with selected joint maint and level III medical support

Reconstitute

Reemploy one brigade operating ashore within 10-14 days

Framing the range of capabilities

A New Capability Emerges

Seabasing Logistics

Sea State 4 operations

MPS: 2004

- Shore Based Operations
- 18 knot SOA
- Prepo USMC MEB Equipment
- Secure Port Offload or via LOTS
- Assembly in Port
- Iron Mountain ashore
- Sustainment flows Via Port
- Part of Common User Pool
- Dense Stowage
- Last-in / First-out

MPF(F): 2020

- Sea Based Operations
- 20-24 knot SOA
- Prepo USMC MEB Equipment
- No need for a port or HNS
- At-Sea Arrival and Assembly
- ≥20 DOS at Sea Base
- Sustained from the Sea Base
- Remains at Sea Base or in JOA
- Combat Configured
- Tailored Logistics packages

MPF(F) Hybrid Squadron
Platform List

Seabasing Logistics

2 LHA(R) & 1 LHD



Selectively off-loadable
-Combat allowance + ≥ 5 DOS
-Aviation Class IX (non F/W)
-Quick reaction

3 LMSRs



Carry: RFI and selectively off-loadable
-Initial combat load for forces carried
-Selected commodities DOS (tbd)
-Carry Class IX for shops

3 TAKEs



Selectively off-loadable
-Large volume break-bulk
-≥15 DOS between 3 ships
-Carry FBE ordnance

3 MLPs



Mobile Landing Platform
-Connects LMSRs, troops and LCACs

2 MPS(L)



- Container RO-RO
- Dense packed
- Primary source of SOA material
- Carry FBE material

ACE fixed wing aircraft location is not on MPF(F) ships – either on an ESG or ashore

2015 Baseline MEB Organization

Seabasing Logistics

14,484 personnel & 1,886 major pieces of equipment

Command Element (769 CE pers)

Reinforced Infantry Regiment

- 3 Inf Bn
- 2 Tank Co
- 2 LAR Co
- 2 AA Co
- 3 Arty Btry
- 1 EFSS Btry
- 1 HIMARS Btry
- 2 Cbt Engr Co

(5,585 pers)

Composite Marine Aircraft Group

- 3 JSF Sqdn
- 1 EA Sqdn
- 1 HMLA Sqdn
- 1.25 CH-53 Sqdn
- 4 VMM Sqdn
- 1 KC-130 Sqdn

(5,660 pers)

Brigade Service Support Group

- DS Co ACE (FW)
- DS Co ACE (RW)
- 3 Inf Bn DS Co
- Mech Unit DS Co
- Arty Unit DS Co
- GS Bn

(2,470 pers)

Major Items of Equipment	MEB
EFV	106
LAV	54
M1A1	30
LW155	18
EFSS	6
HIMARS	6
JTRS	215
HMMWV	799
ITV	33
MTVR	335
LVS	134
UH-1Y	9
AH-1Z	18
JSF	30
EA-6B	5
KC-130	12
MV-22	48
CH-53E	20
UAV	8
PERSONNEL*	14,484

Developing Joint Concepts

- Seabasing Joint Integrated Concept (JIC)
- Joint distribution pipeline
- Joint Logistics JIC
- Joint theater logistics management

Opportunities to integrate efforts

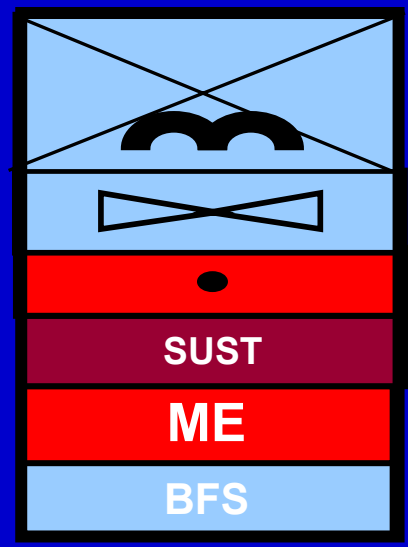
Non-Navy programs	**Navy programs**	**Joint programs**
Austere Access HSS (AAHSS)	Rapid Strategic Lift Ship (RSLS)	Combine?
Theater Support Vessel (TSV)	High Speed Vessel	JHSV
Army Strategic Flotilla (ASF)	MPF(F)	Complement?
Heavy Lift VTOL (HLVTOL)	CH-53X	Complement?
DLA Deployable Distribution Depot	T-AKE	Integrate?

Seabase enablers with in service relevance

Notional Army application
Brigade centered building blocks

Seabasing Logistics

- Infantry BCT ~3500 pers
- Airborne/Air Assault BCT ~ 3500 pers
- Stryker BCT ~3900 pers
- Heavy BCT ~3800 pers
- Aviation Expeditionary Brigade ~2500-2700 pers
- Fires BDE ~1100 pers
- SUST — Sustainment BDE ~1000 pers
- ME — Maneuver Enhancement BDE ~600 pers
- BFS — Battlefield Surveillance BDE ~1000 pers



	3500
	2000
	550
	500
	200
	350
	7100

Volume appears achievable, "devil's in the details"

* Personnel numbers current as of 3 Dec 2004

Army Perspective

Seabasing Logistics

Conceptual support, but issues remain to be addressed

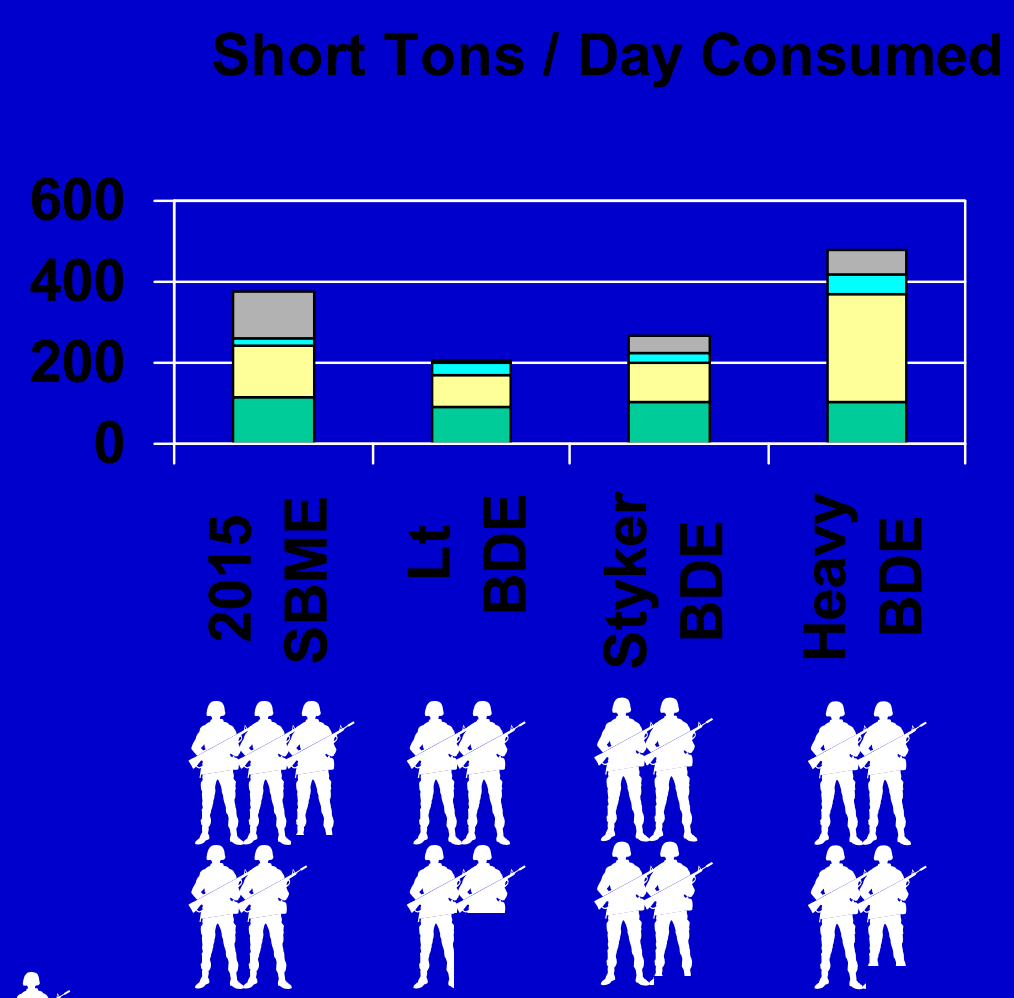
Can the Navy's seabase accommodate…

- Lift heavy forces from sea platforms
- Accommodate complex RSOI
- Address anti-access littoral threats (MCM, missiles)
- Provide force protection when JSB must approach the shore
- Provide supporting fires to shore forces
- Joint logistics common operating picture
- C^2 for Joint Force Land Component Commander

…From the sea

Supporting Two Brigades Ashore

Seabasing Logistics



200-500 ST daily flow per brigade

Two Brigade consumption:
- 1 T-AO every 40-80 days
- 1 T-AFS every 20-40 days

Logistics Enabling Capabilities

Seabasing Logistics

Log C²

Interface & Transfer Capabilities

- Skin-to-Skin Transfers
- At-Sea Container Transfer
- Heavy Unrep
- Integrated Landing Platform
- Networked connectivity

Intra-Ship Capabilities

- Modular Packaging Designs
- Selective Offload
- Improved Internal Cargo Handling
- Total Asset Visibility

Capabilities required to provide interface between connectors to facilitate the transfer of containers, quadcons, pallets, personnel, ordnance, and equipment.

Without them …

- ***Limited to current methods of resupply***
- ***Unable to meet throughput requirements***



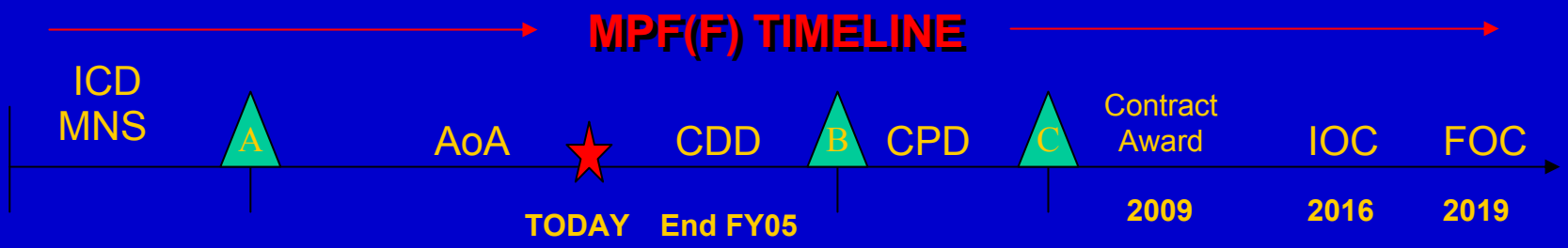




Seabasing Capability Timeline

Developing capability

- Today:
  - Project MEU ashore with 15 days sustainment
  - Project and sustain SOF support
  - Support major humanitarian operations
- Future: Project an entire MEB ashore
  - Continuously support 2 joint brigades ashore



Limited capability

2 brigade JFEO

Summary

- A strong concept with joint support
- Approved Joint Integrating Concept
- Capabilities must be refined
- Jointness needs to be matured
- Logistics CONOPS must support warfighting requirements
- Capabilities will mature as new technology/platforms mature
- Opportunities abound as capability development continues



Questions?

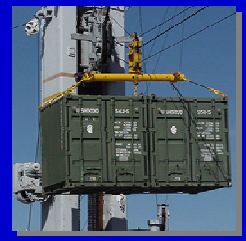
Moving Heavy Loads At Sea

- Future Sea Bases will require four separable at-sea cargo transfer processes
  - Selective cargo movement within ships
  - At-sea transfer from vessels to lighters inside well decks
  - At-sea transfer to and from lighters alongside Sea Base ships
  - At-sea transfer from black hull commercial vessels to Sea Base ships
- For heavy loads, these processes differ
- Stabilized cranes, together with means to stabilize ships, offer limited technological options for at-sea cargo transfer

CLF Advanced Development

Seabasing Logistics

- Improved Underway Replenishment
- Shipboard Material Handling
- Standardized Containerization
- Asset Visibility & Planning







Naval Logistics Integration with USMC

Common Intermodal Packaging

We need to improve the handling and reduce retrograde, waste, and storage requirements as sustainment moves through the supply chain.



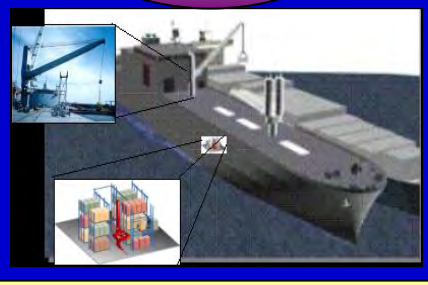
Supplier
Warehourse
Ports

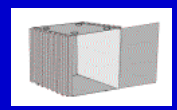




- Container Receipt
- Container Unstuff
- Transshipment

Sea Base
MPF(F)





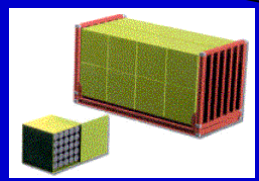
Air

End User

Ground
Forces

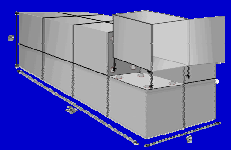
Connector Paths

Surface

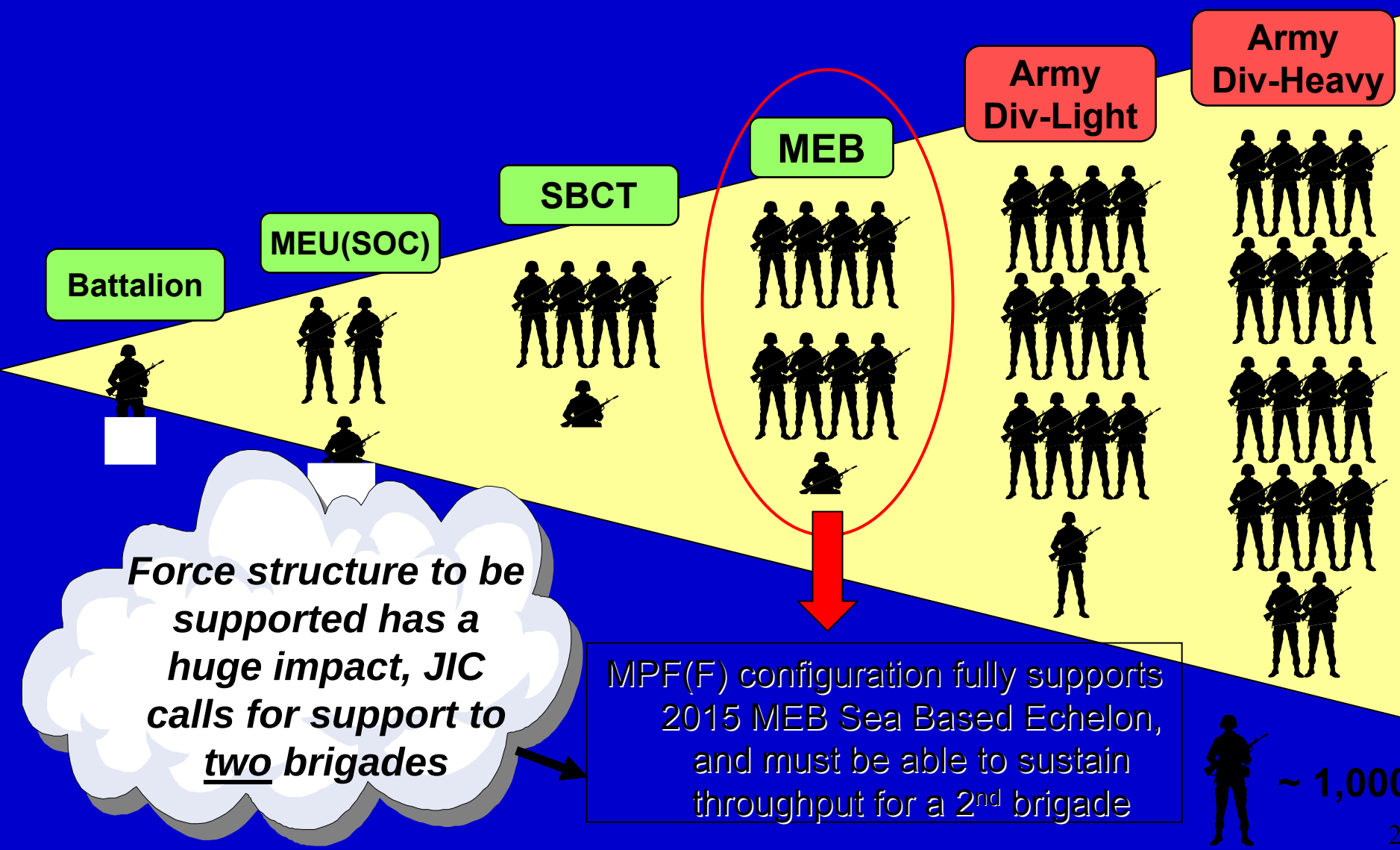


Ground
Forces

Standardizing the packaging through the transportation system



Sizing the Sea Base -- Jointly
(What capacity is required?)



Seabased Forcible Entry Requires

- All functions performed on the Sea Base
  - Moving forces, materiel, and weapons from an advanced base (or CONUS) to the Sea Base
  - At sea reception, staging, onward movement and integration
  - Getting the force to the objective and sustaining it
  - Sea, air and land platforms working in concert to project power to the objective
  - Defense suppression
- A ***joint system*** extending across interoperable platforms, netted together and sustained from the sea

It's much more than logistics – it's operations

MPF (F)
Operational implications

Seabasing Logistics

Key Mission Capabilities

- Close the Force
  - Assembly at sea/enroute
- ATF Interoperability
  - At-sea interface
  - RW platform
  - UNREP capable
  - Selective offload
  - C4I
- Sustainment
- Medical
- Joint C2
- Maintenance

Sea Based Logistics

- Cargo transshipment capability
  - Logistics Throughput Node
  - AB to Sea Base Shuttle Ship
- Personnel & aviation basing
- Open ocean air and surface craft interface
- Selective Offload of Cargo
- Total Asset Visibility
  - Intransit Visibility
- At-Sea Container Handling
  - Internal & External
- At-sea Cargo Warehousing

Experimentation

Seabasing Logistics

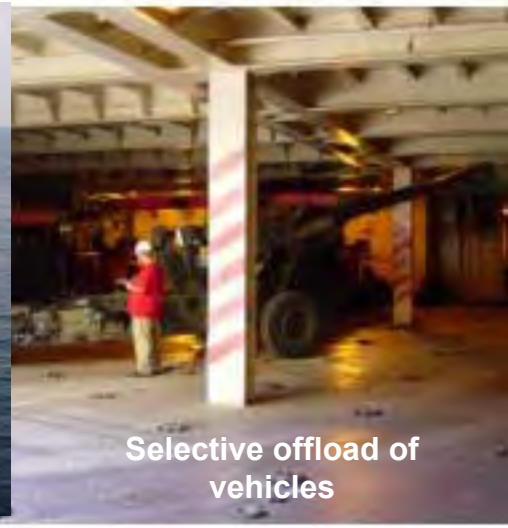






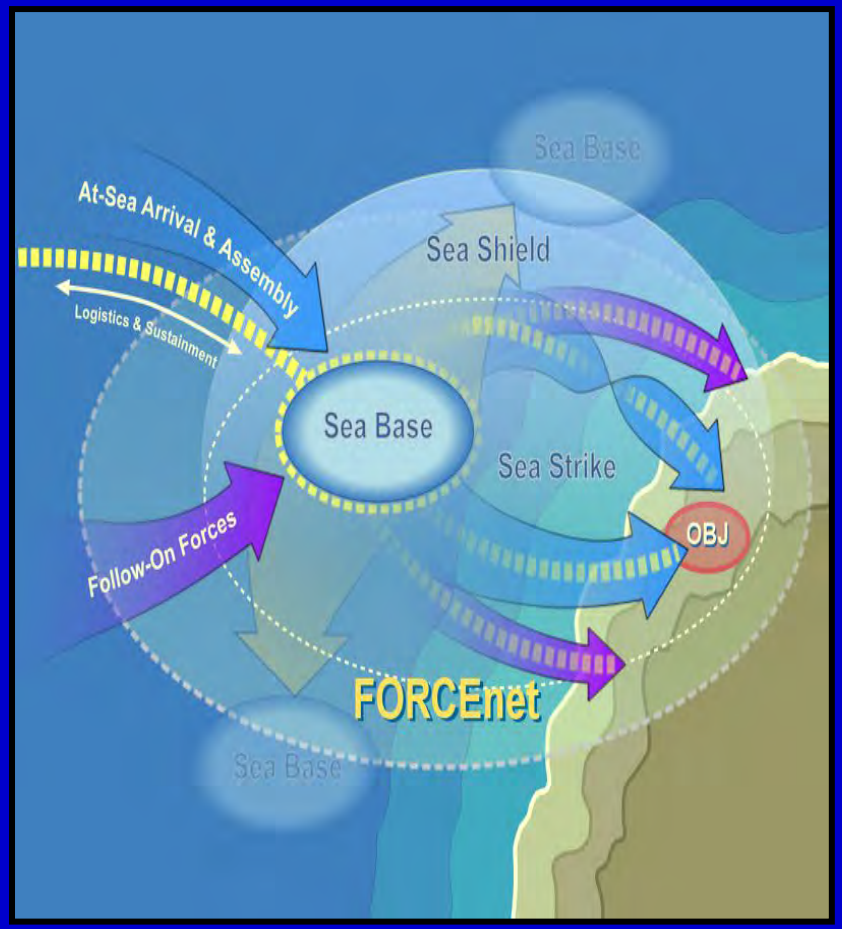






Measures of Performance

Seabasing Logistics



Capacity How much joint force capability can be supported.

Rate How fast can things be accomplished to support joint force capability over a given time under standard sets of conditions.

Infrastructure What physical requirements and facilities are needed to support and sustain the joint force capability.

Interoperability To what degree can we seamlessly integrate/support joint force capability.

Survivability To what degree can we protect joint force capabilities.

Accessibility How easily can we operate within the physical constraints presented by terrain, hydrography, weather, depth of operations, and threat.

Framing the measures of effectiveness

Projected MEB Flow

Seabasing Logistics

MPF(F) MEB
(14,484)

Sea Base Echelon (SBE)
(8,397)

Sea Base Maneuver Element (SBME)
(4,989)

Sea Base Support Element (SBSE)
(3,408)

Forward Base Echelon (FBE) primarily fixed wing
(1,907)

Sustained Operations Ashore Echelon (SOAE)
(4,180)
(primarily remain in CONUS)



10,304

Essential personnel who have to deploy within the 14-day window are from the SBE and FBE only.

Arrival of the SOAE could occur outside of the 14 days and not necessarily go to the Sea Base.

* Personnel numbers current as of 3 Dec 2004

Future Surface Connector Concepts

Seabasing Logistics

Developing capabilities



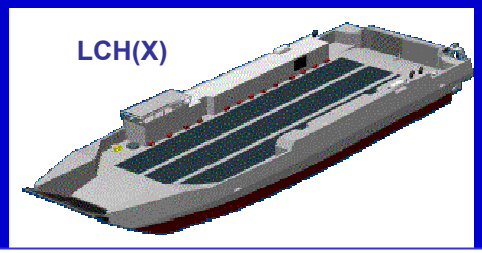
Speed - 76 KT
Range – 5,607-10,000 NM
Avg Payload - 238 ST



Speed - 38 KT
Range - 6,000 NM
Payload - 8,000 ST
158,000 SQ FT



Speed - KT
Range - NM
Payload - ST



Speed - 30 KT
Range – 200-300 NM
Payload – 2200 ST



Speed - 36 KT
Range - 8,000 NM
Payload - 5,000 ST
131,000 SQ FT



Speed - KT
Range - NM
Payload - ST
SQ FT



Speed - 15 KT
Range – 12,000 NM
Payload – 13,000 ST, 750 TEUs
175,000 SQ FT
30-55,000 bbls

Future Air Connector Concepts

Seabasing Logistics



Speed - 365 KT
Range – 800 NM
Payload – 22 ST
150 PAX



Speed – 480 KT
Range – 1-3000 NM
Payload – 30-40 tons
tbd PAX



Speed – 375 KT
Range – 3000 NM
Combat Radius – 1000 NM
Payload – 21 tons
128 pax



Speed – 140 KT
Range – 300 NM
Combat Radius – 1000 NM
Payload – 2 tons
12 pax



Speed – 275 KT int. load
- 110 KT ext. load
Combat Radius – 240 NM
Payload – 10 tons
24 pax



Speed – 325 KT
Range – 2000 NM
Payload – 30 tons
180 PAX



Speed – 280 KT
Range – 2000 NM
Payload – 20 tons
67 PAX



Speed –150 KT int. load
- 110 KT ext. load
Range – >540 NM
Combat Radius – >200 NM
Payload – >16 tons
55 pax

S&T Investments

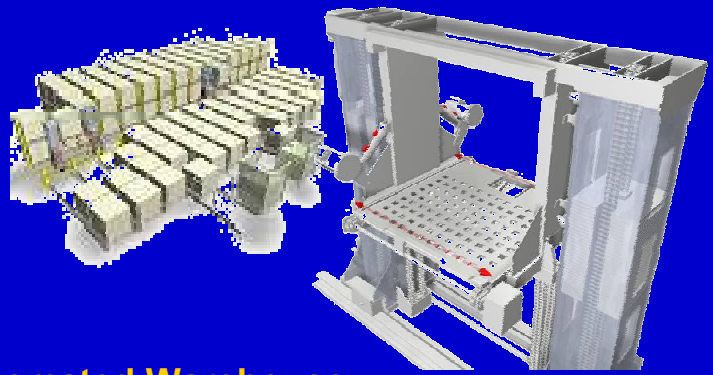
Seabasing Logistics







Compact / Agile Material Mover



Automated Warehouse

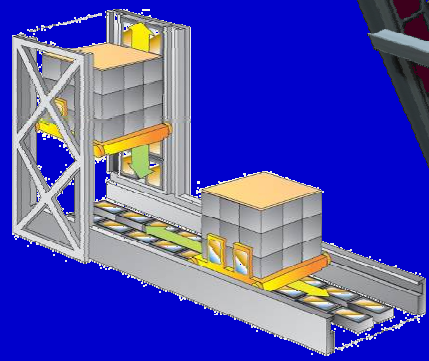


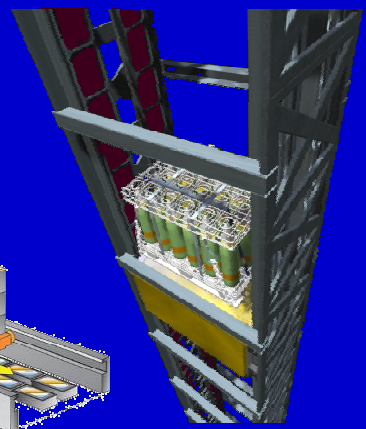
38MW Axial Flow Waterjet





Large Vessel Interface
Lift-On / Lift-Off (LVI LO/LO)





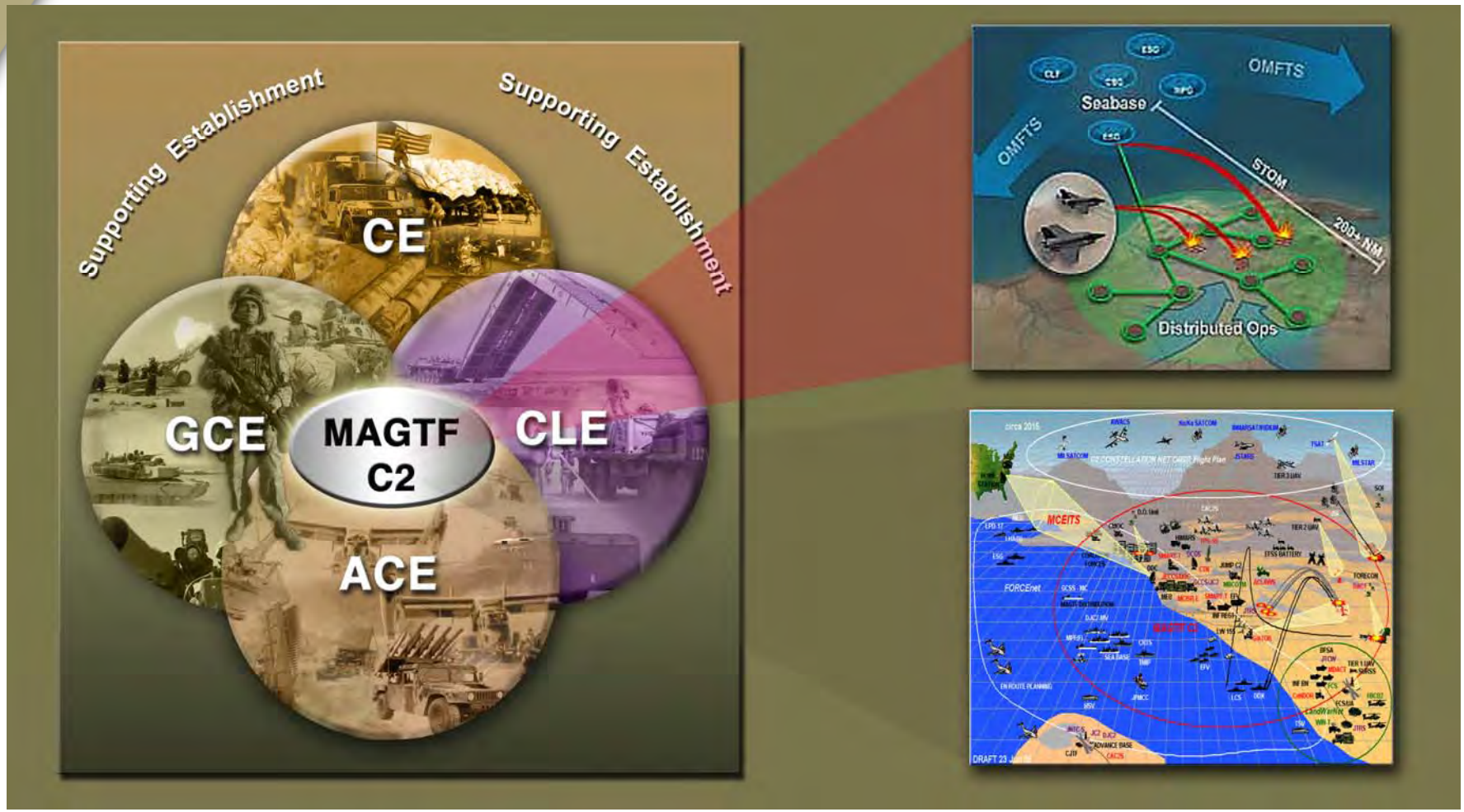
High Rate Vertical/Horizontal Material Movement

MAGTF C2 Overview

19 Oct 2005

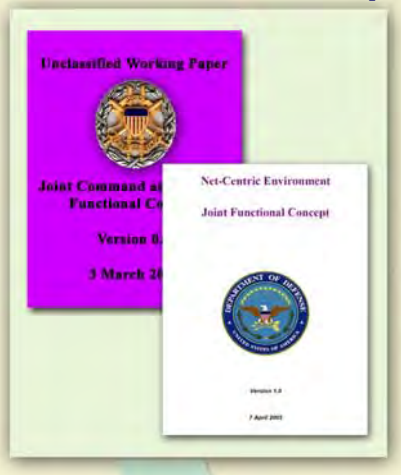
C2I Division
CDD, MCCDC

Marine Air-Ground Task Force Command & Control (MAGTF C2)



MAGTF C2 Strategy is tied to Joint, Naval & Service Concepts

JC2 & Net-Centric Functional Concepts



GIG CONOPS



FORCEnet Concept



LandWarNet
C2 Constellation Net

MAGTF C2 Strategy



MAGTF C2 Transition Strategy

- Common
- Modular
- Scaleable

CE

CLE

I&L TTF

GCE

ACE

Aviation TTF

Supporting Establishment

Supporting Establishment

CE

GCE

MAGTF C2

CLE

ACE

MAGTF C2

CO-EVOLUTION JOINT

C² Concept Development • Refinement • DOTMLPF Implementation

JC2, JBMC2

JTCW

GCSS-MC

2007 2008 2009 2010 2012

CAC2S

MAGTF C2 SP1

DCGS

FORCEnet

Organization • CONOPS • Doctrine • Personnel • Facilities • Training • Leadership • Schools



2015 Marine Corps

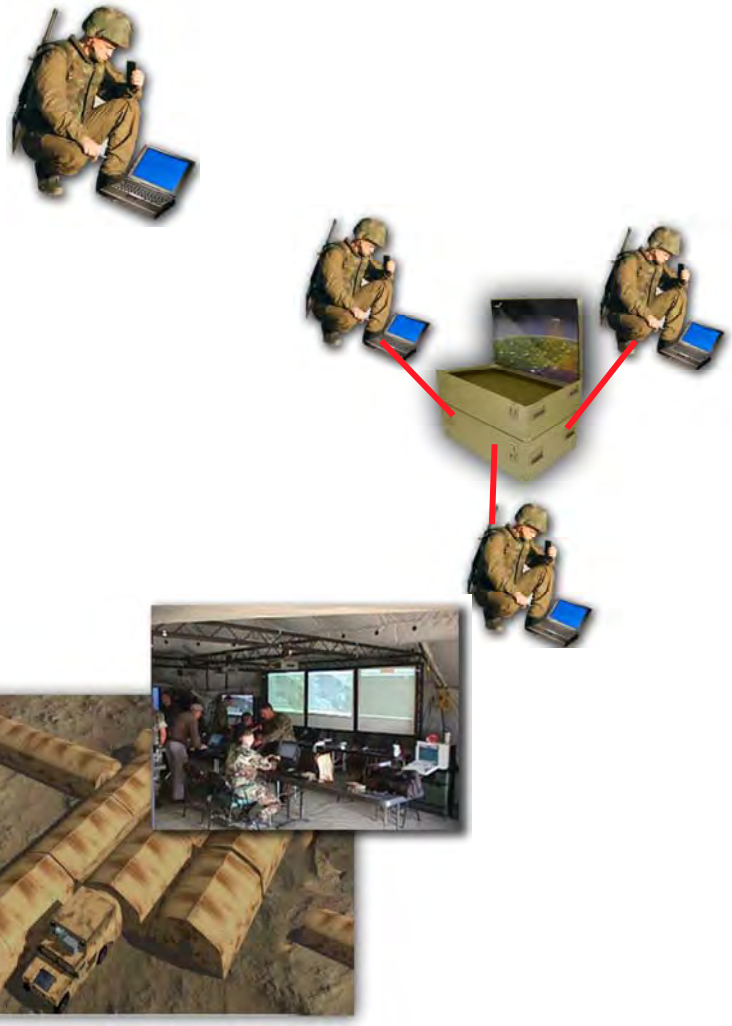
CO-EVOLUTION MAGTF / NAVAL

- Concept Development
- Capabilities Based Assessment

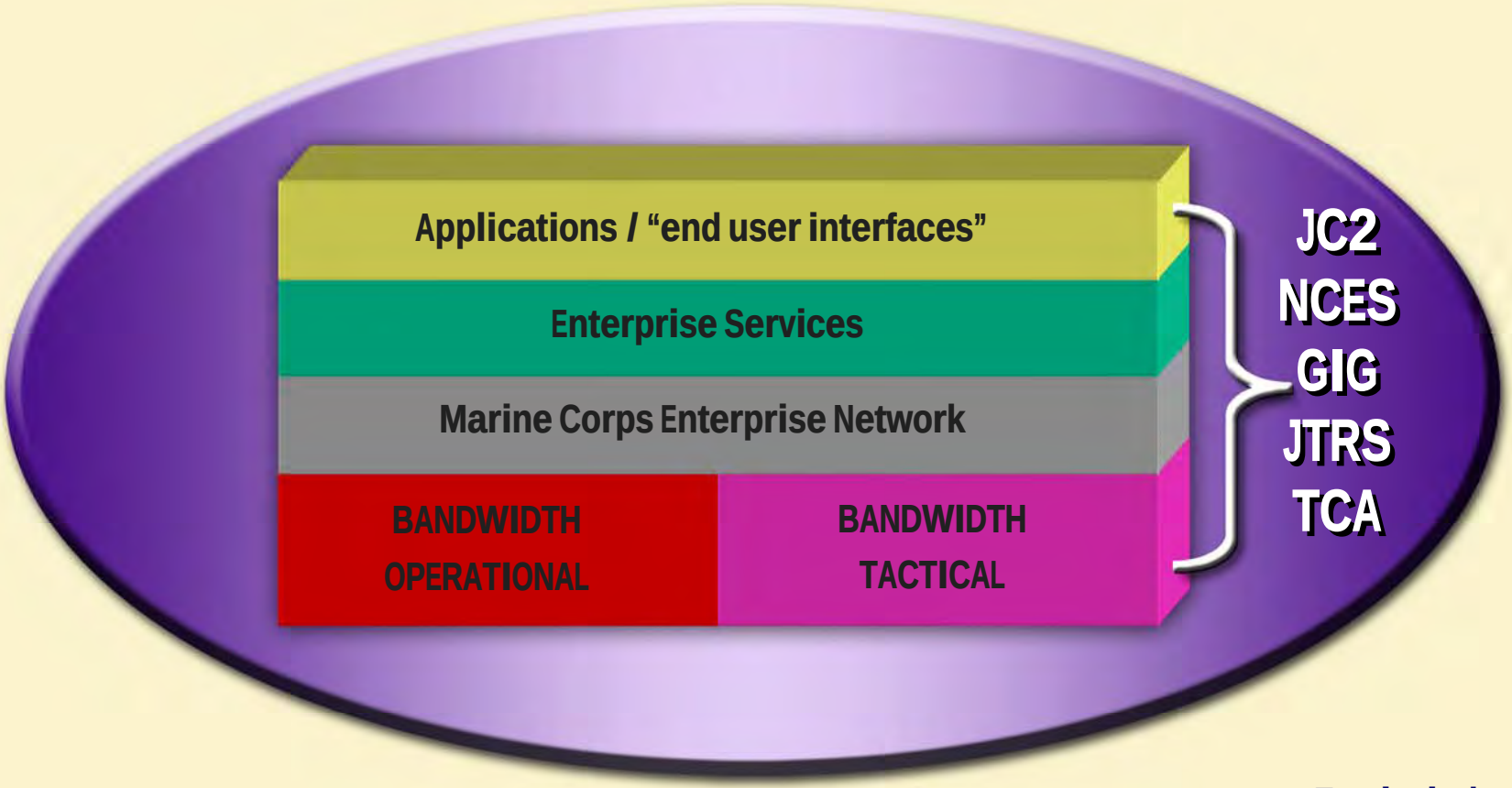
- Spiral Development and Fielding
- DOTMLPF evolution, harmonized with MAGTF and Joint C2 Requirements

Common, Modular, and Scaleable

- Common: MAGTF command echelons use the same equipment. Unique requirements, such as sensors and intel feeds, enter via standard gateway.
- Modular: System is designed to enable component utilization that logically supports a variety of con-figurations for various echelons of C2 across MAGTF.
- Scaleable: Software & hardware facilitate Battalion/ Squadron, Regimental/ Group, Division/Wing, & MEF-level command functions for COC by adding or subtracting common and modular components.

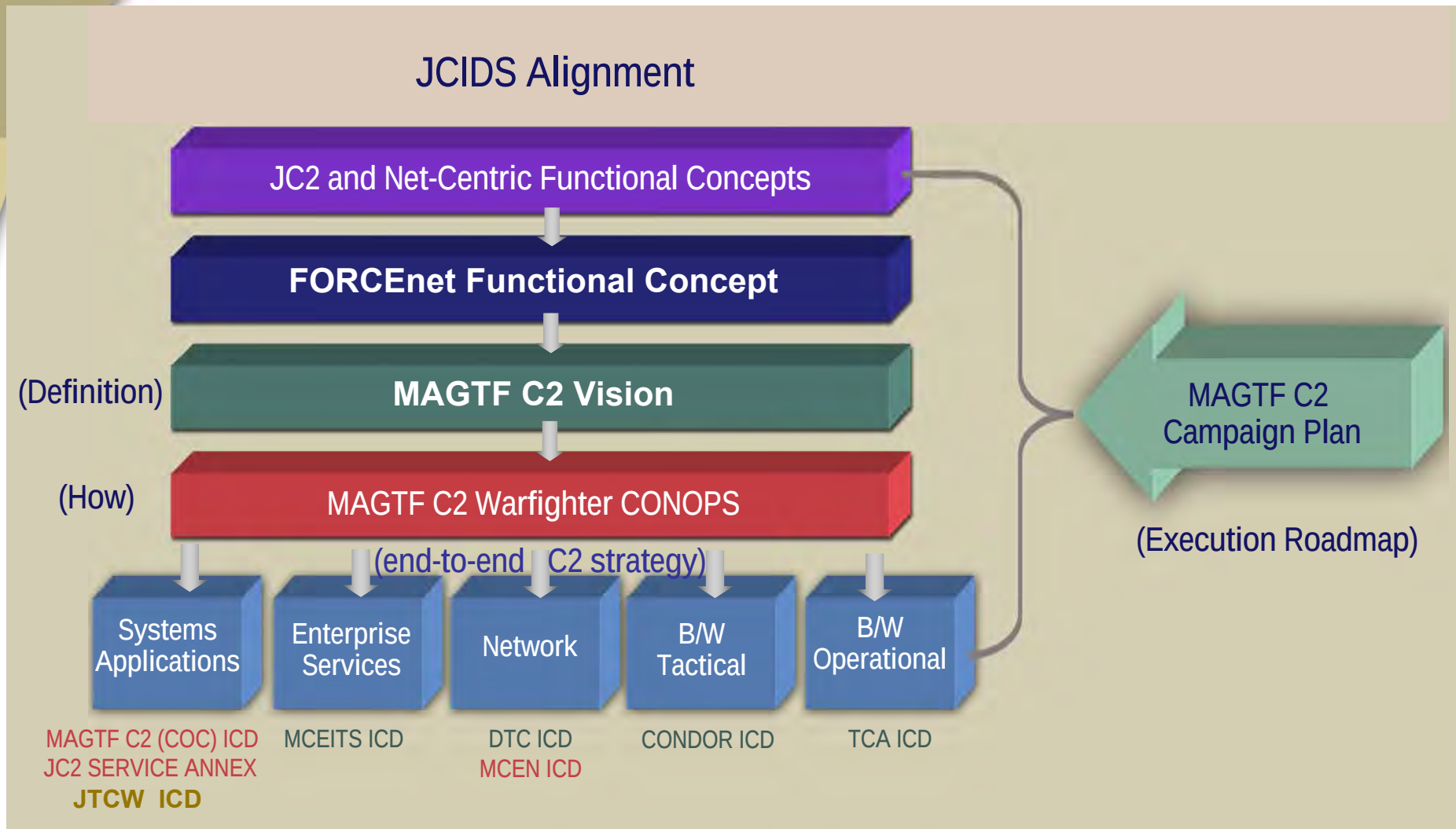


MAGTF C2 Capability Framework

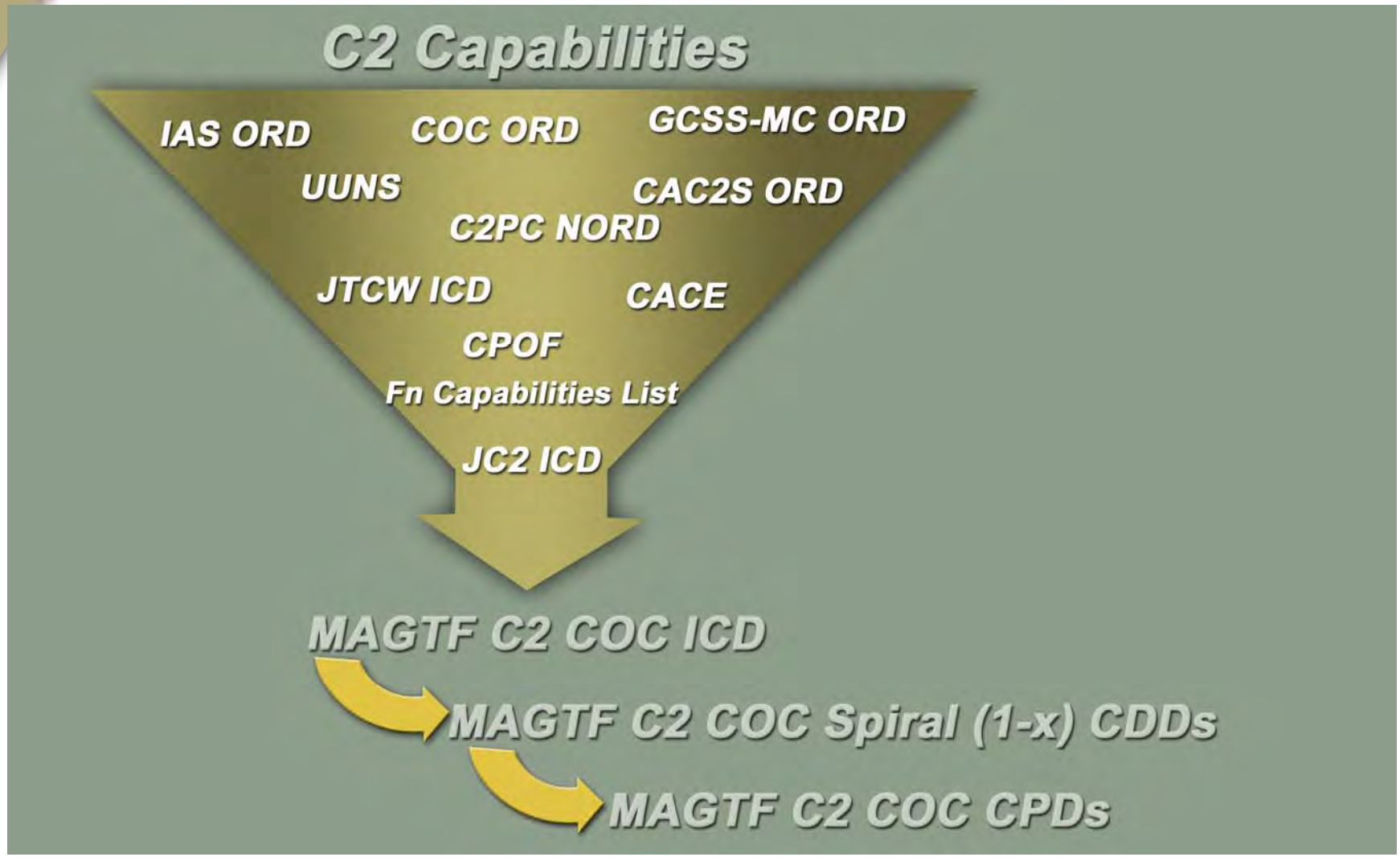


Architecture informed, the foundation for governance, and the framework for DOT_LPF

MAGTF C2 End-to-End Capabilities



MAGTF C2 JCIDS Alignment Strategy

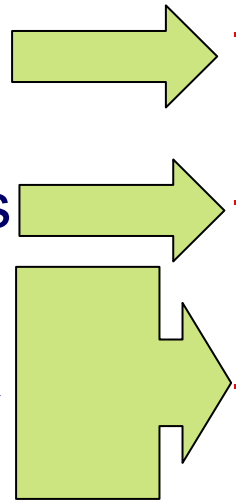


MAGTF C2 Campaign Plan

- Components:
  - **Vision** :"End to end C2" Strategy
    - USMC cultural and organizational change and approach
  - **Concepts**
    - Joint, Naval (FORCEnet), Service
    - Capabilities
  - **Processes Alignment**
    - EFDS, NCDP, JCIDS, PPBE
  - **Roles and Responsibilities**
    - "Majority & Minority" C2 stakeholders
  - **Integration**
    - DOTMLPF assessments and integrated architecture
  - **Roadmap**
    - "500 Day Plan"

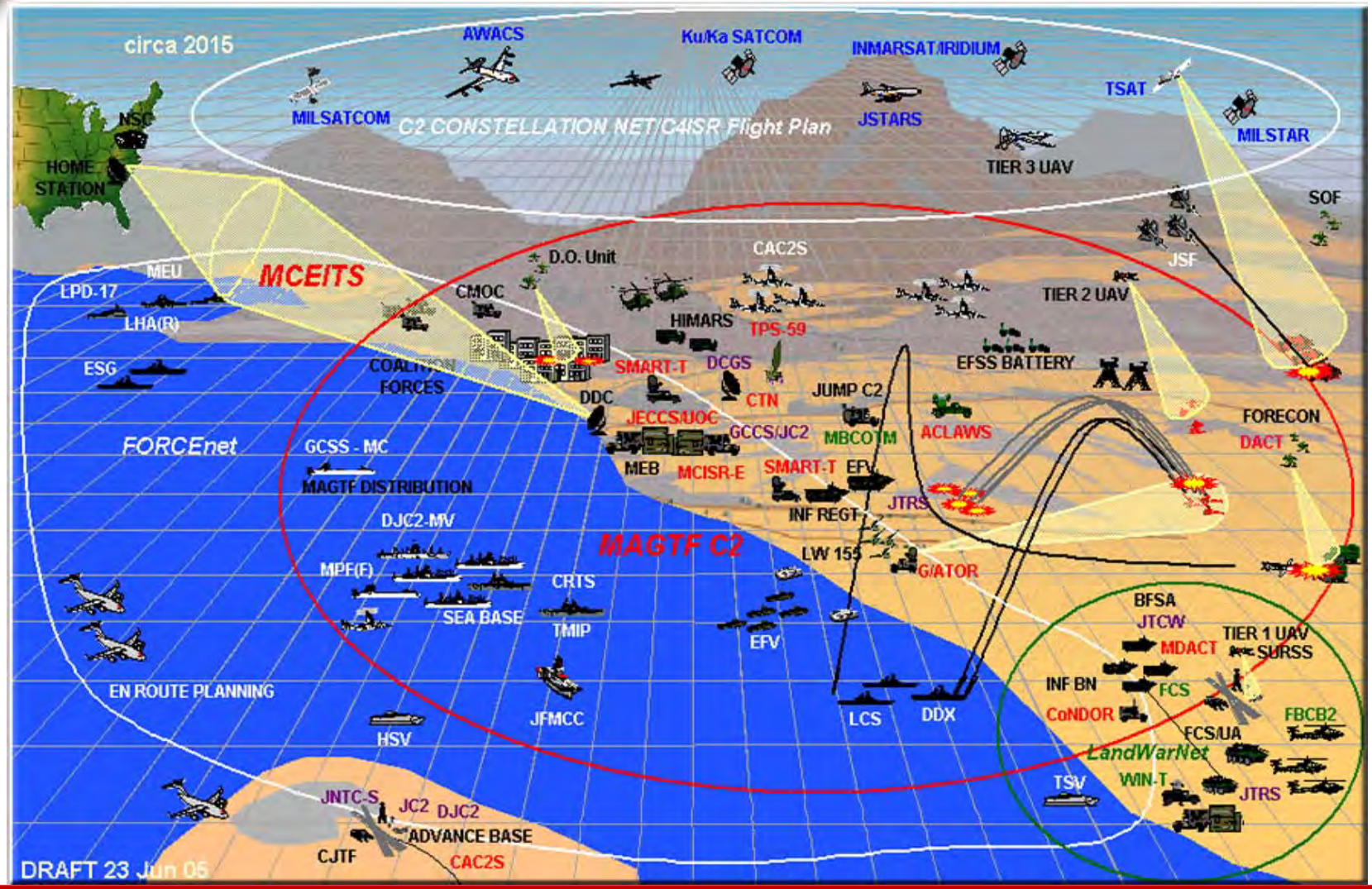
Alignment

- **MAGTF C2**
  - Applications/ "End user interface"
  - Enterprise Services
  - Marine Corps Enterprise Network
  - Bandwidth



- **LandWarNet**
  - Warfighting Mission Area (MA)
  - Business MA
  - Network Transport/ Services MA
  - Intelligence MA

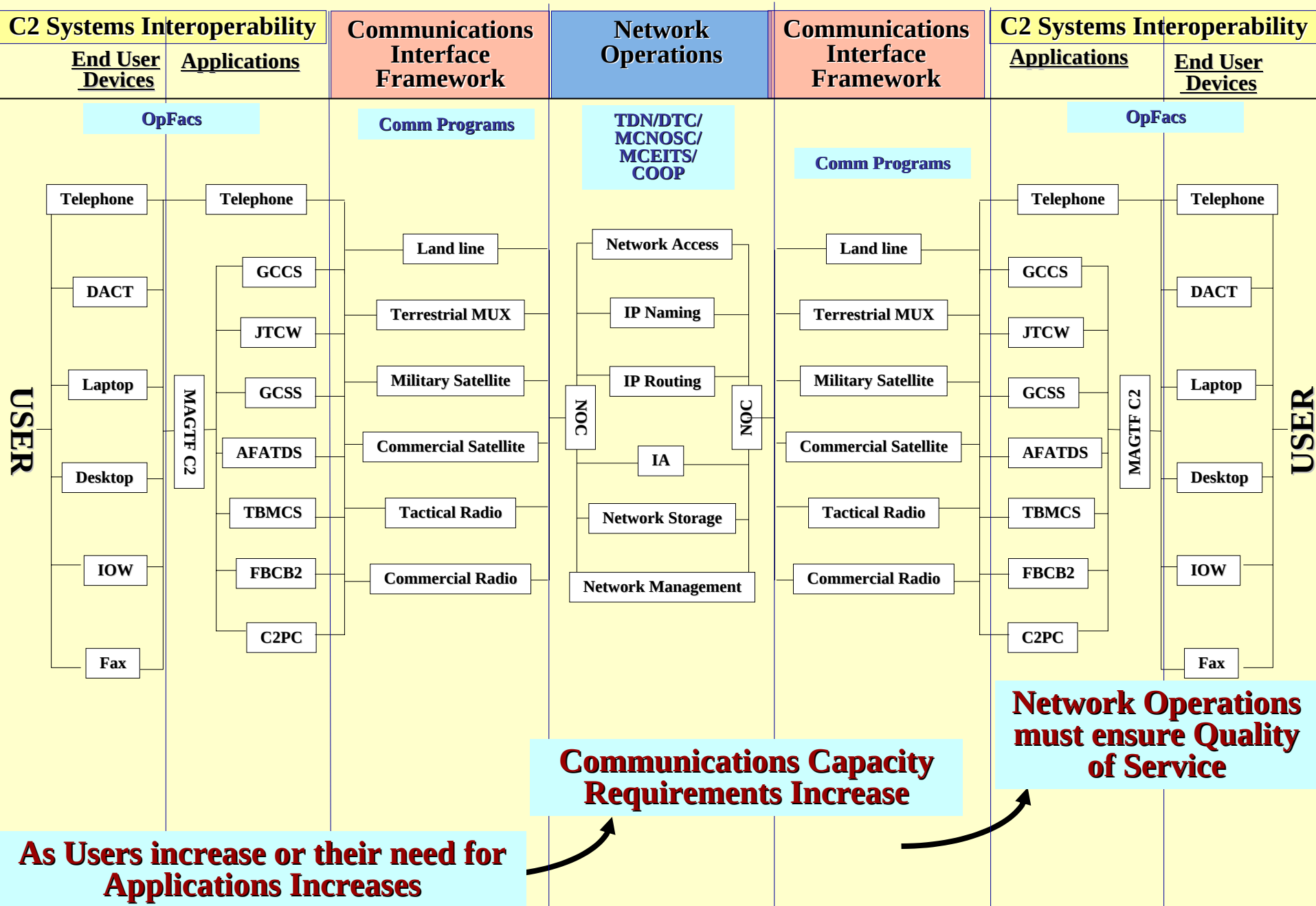
MAGTF C2 Notional Operational View

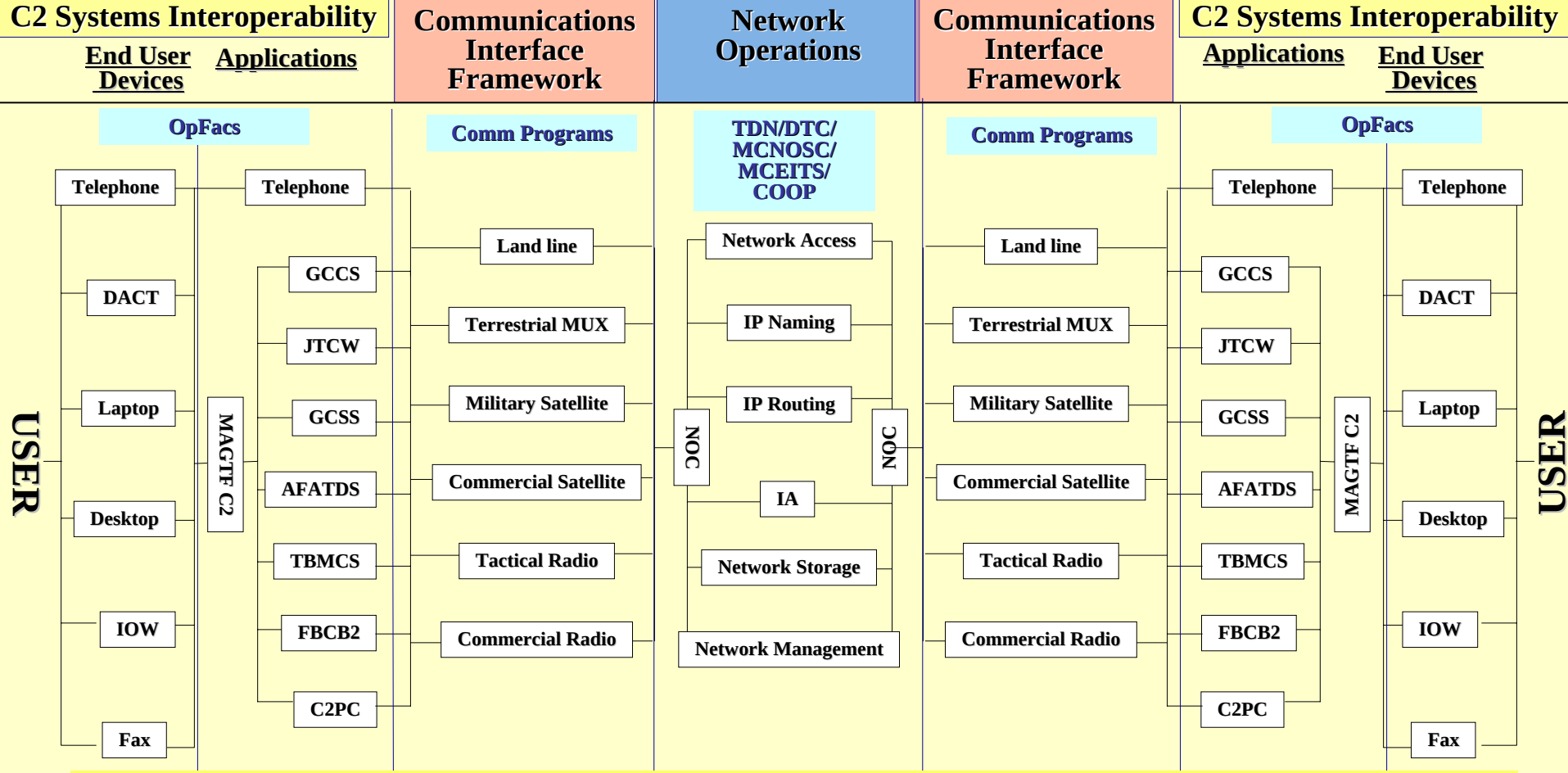


Questions?

Back-Up

Capability To Engineering





Understanding the technical interfaces between these different systems enables analysis of network's ability to support the required mission.

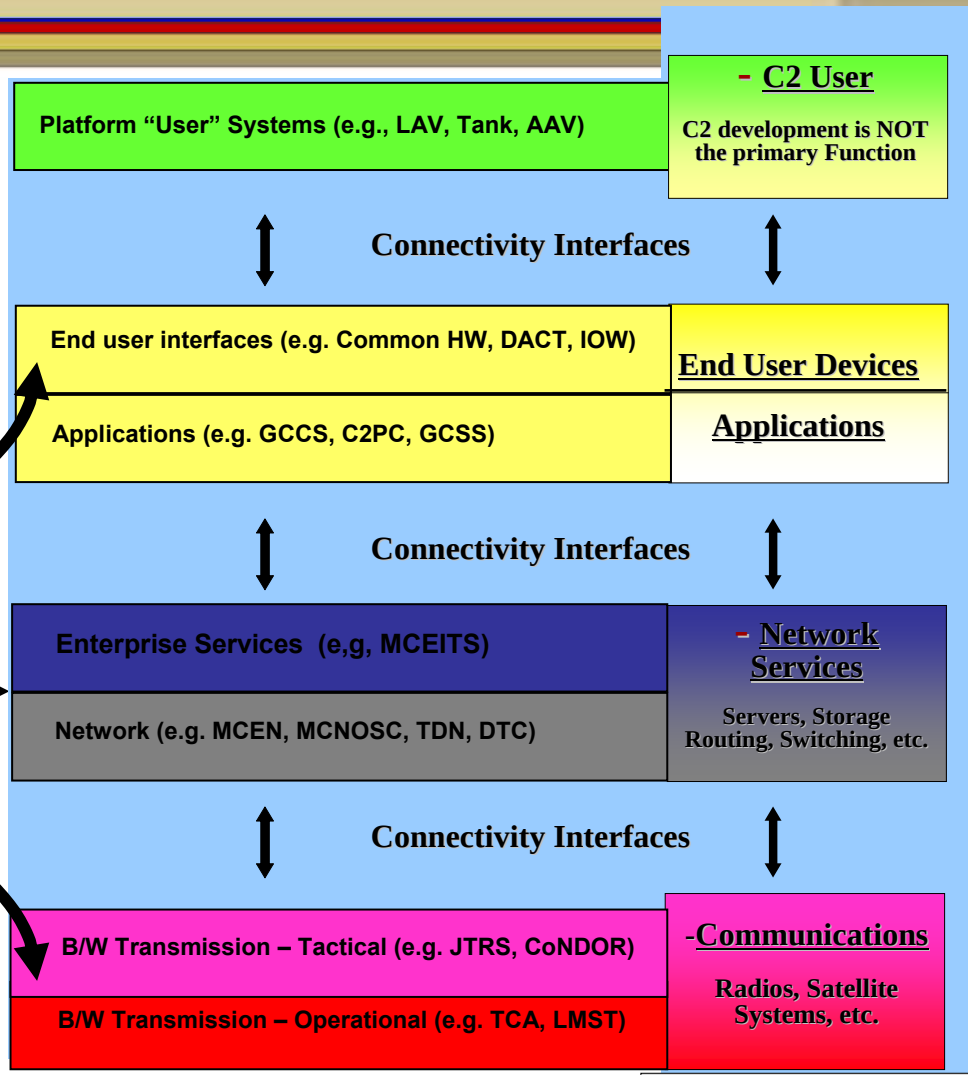
- # of Subscribers using Secure Email (SMTP) defines the Number of Servers required.
- Amount of this traffic delivered to other CPs (Geographic Nodes on the Battlefield) defines the link requirements.
- The equipment used in this link defines the performance of the link.
- Information such as transmission delay, packet size, protocol use and physical connectors are required for analysis.

Mapping Capability To Architecture

MAGTF C2 "Reference Model Layers"

- Applications / "end user interfaces" (e.g MAGTF C2)
- Enterprise Services (e,g, MCEITS)
- Network (e.g. MCEN, MCNOSC, TDN, DTC)
- B/W Transmission – Tactical (e.g. JTRS, CoNDOR)
- B/W Transmission – Operational (e.g. TCA, LMST)

Layers grouped by capability



C2 Capability Categories

C4I Material Solution Categories

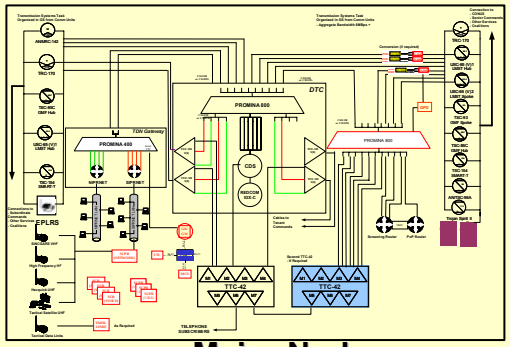
Database Support

- **MCASE provides a ready made tool to enhance-**
  - **Create Object-oriented database**
  - **Flush out the Attributes of the object ONCE**
    - reuse multiple times
    - Protocols, Connections, Components, applications, delay, spectrum
  - **Validate and Verify** Database
  - Maintain Configuration Control of Data
  - Remove outdated data
- **Each C4I End Item requires an SV, TV and ISP**
  - Build the Attributes of MCASE to this end – automatic ***Program Support!!***
- **Use the database to define linkages and equipment to predict future C4I Capability Needs**

Use of Database & Node in Analysis

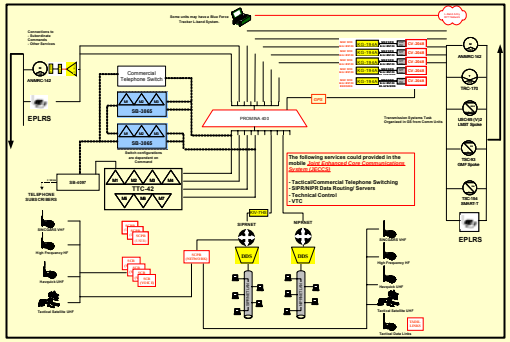
- **Statistical Analysis inherent in Performance and Configuration Management provide realistic validation of Network provisioning.**
  - *Proof that the subscribers can get the requested service*
  - *Proof that each piece of equipment connects and is sufficient for the task*
  - **Ensure the Node can support ALL of the subscribers and services requested.**
  - **Predict failures and gaps in the architecture**
- **Understand the attributes of the equipment – analyze how they work together.**
- **Use actual test events to validate the analysis**
- **Use these to develop verifiable models**

Baseline Nodal Definitions



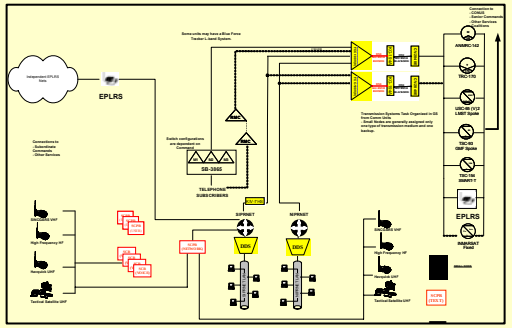
Major Node:

- Provisioned to support up to 1500 subscribers
- All Major Applications and Services
- Data Communications minimum of
  - 2 Links to Senior/STEP
  - 3 Links Adjacent
  - 4 Links Subordinate



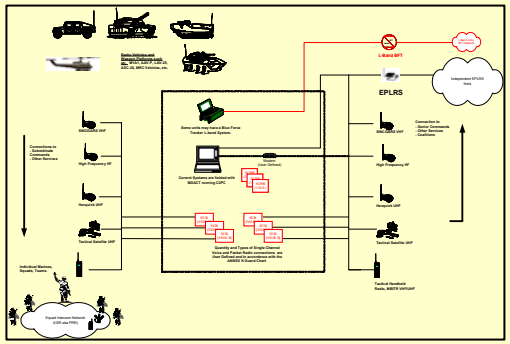
Medium Node:

- Provisioned to support up to 500 subscribers
- All Major Applications and Services
- Data Communications minimum of
  - 1 Links to Senior/STEP
  - 3 Links Adjacent
  - 4 Links Subordinate



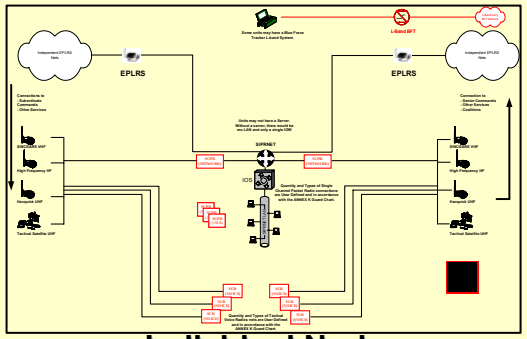
Small Node:

- Provisioned to support up to 150 subscribers
- Combat Related Applications and Services
- Data Communications minimum of
  - 1 Links to Senior/STEP
  - 3 Links Adjacent
  - 4 EPLRS/CONDOR Subordinate



Mobile Node:

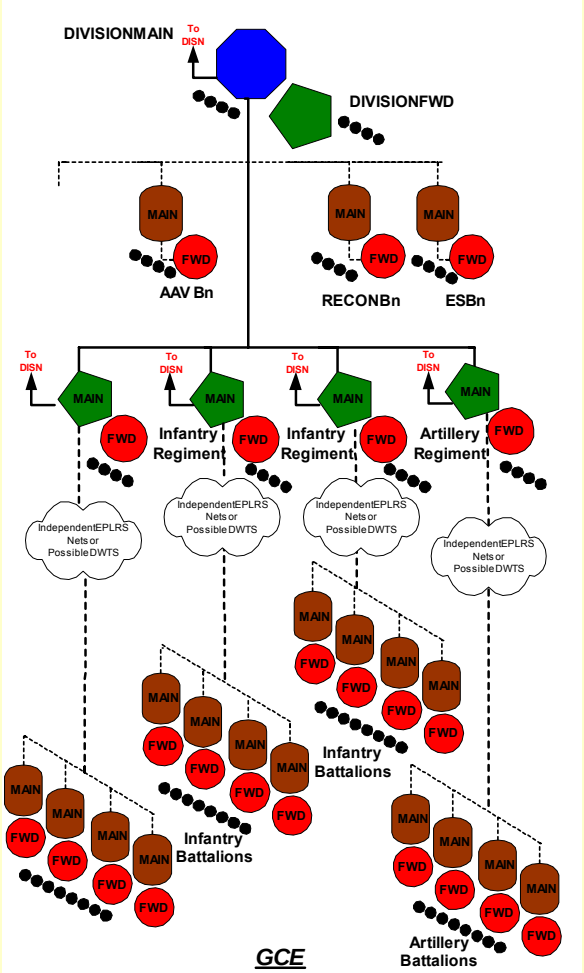
- Provisioned to support up to 25 subscribers
- Essential Applications and Services
- Data Communications minimum of
  - 1 CONDOR Intranet Link



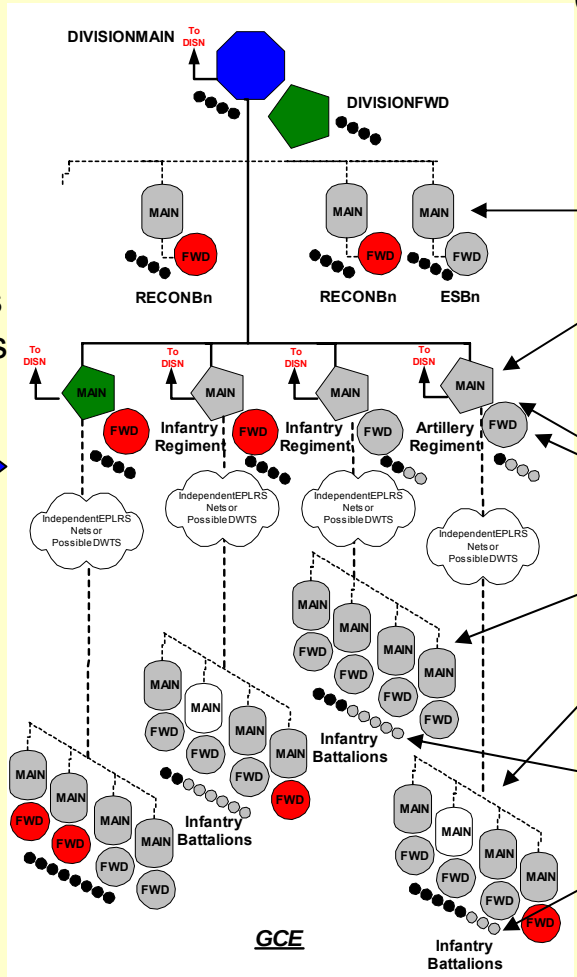
Individual Node:

- Provisioned to support up to 4 subscribers
- Essential Applications and Services
- Data Communications minimum of
  - 1 EPLRS Link into CONDOR Intranet

Strategic Planning through Nodal Depictions



Gap and Overlap Analysis of Actual T/E, Current PORs and POM Initiatives



Recommended Capability Categories necessary to Support in POM.

Network Services

Bandwidth Transmission

End User Devices

Warfighter Approved Nodal Capability Set – **What they Want**

Analyzed Nodal Capability Set – **What they can actually deploy**

$

SE&I Assistance in Strategic Planning

2005 2006 2007 2008 2009 2010 2011 2012 2013

Current Capabilities

Analysis of POM Submissions along Capability Categories

POM-08

Field POM-06 Capabilities

Capability Categories Needed
- Apps Alignment (CAC2S Inc 1)
- End User Devices
- OTM/OTH Comms

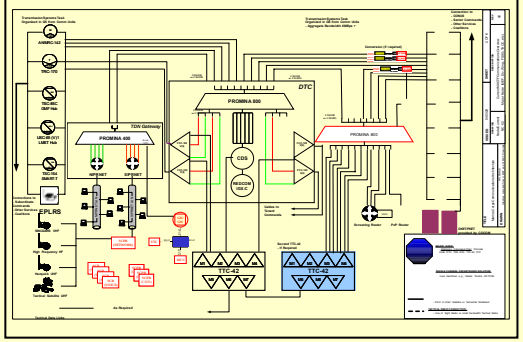
Analysis of POM Submissions along Capability Categories

POM-10

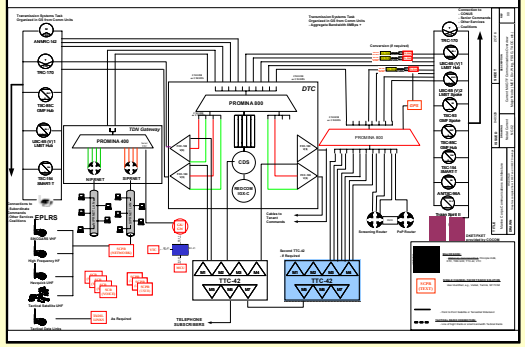
Field POM-08 Capabilities

Capability Categories Needed
- Apps Air- Grd on one Screen
- Telephone and VOIP
- Operational Bandwidth
- Tactical Bandwidth
- NetOps

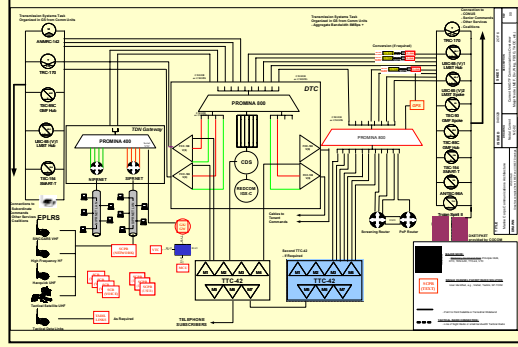
Nodal Baseline



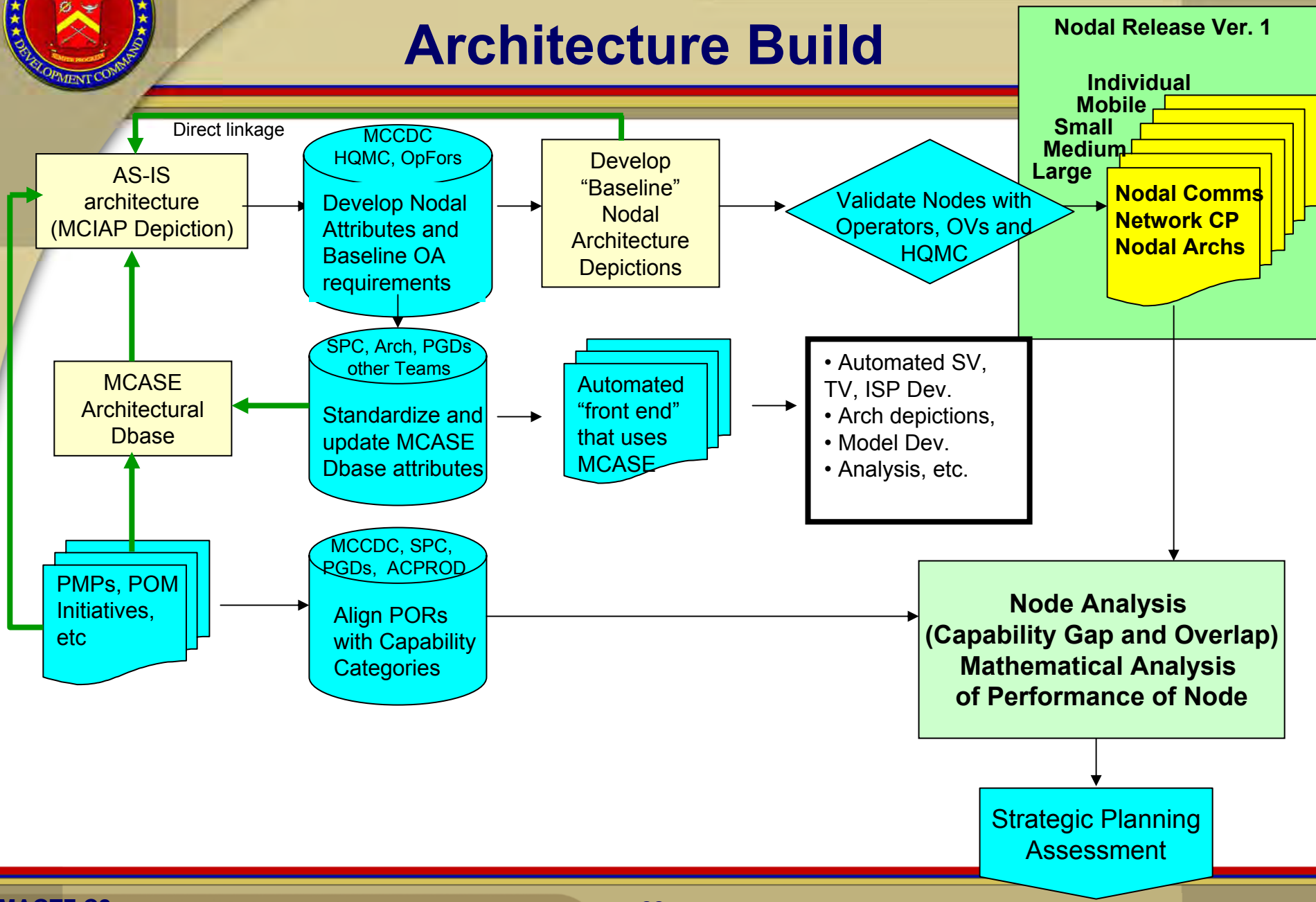
Nodal Release #1



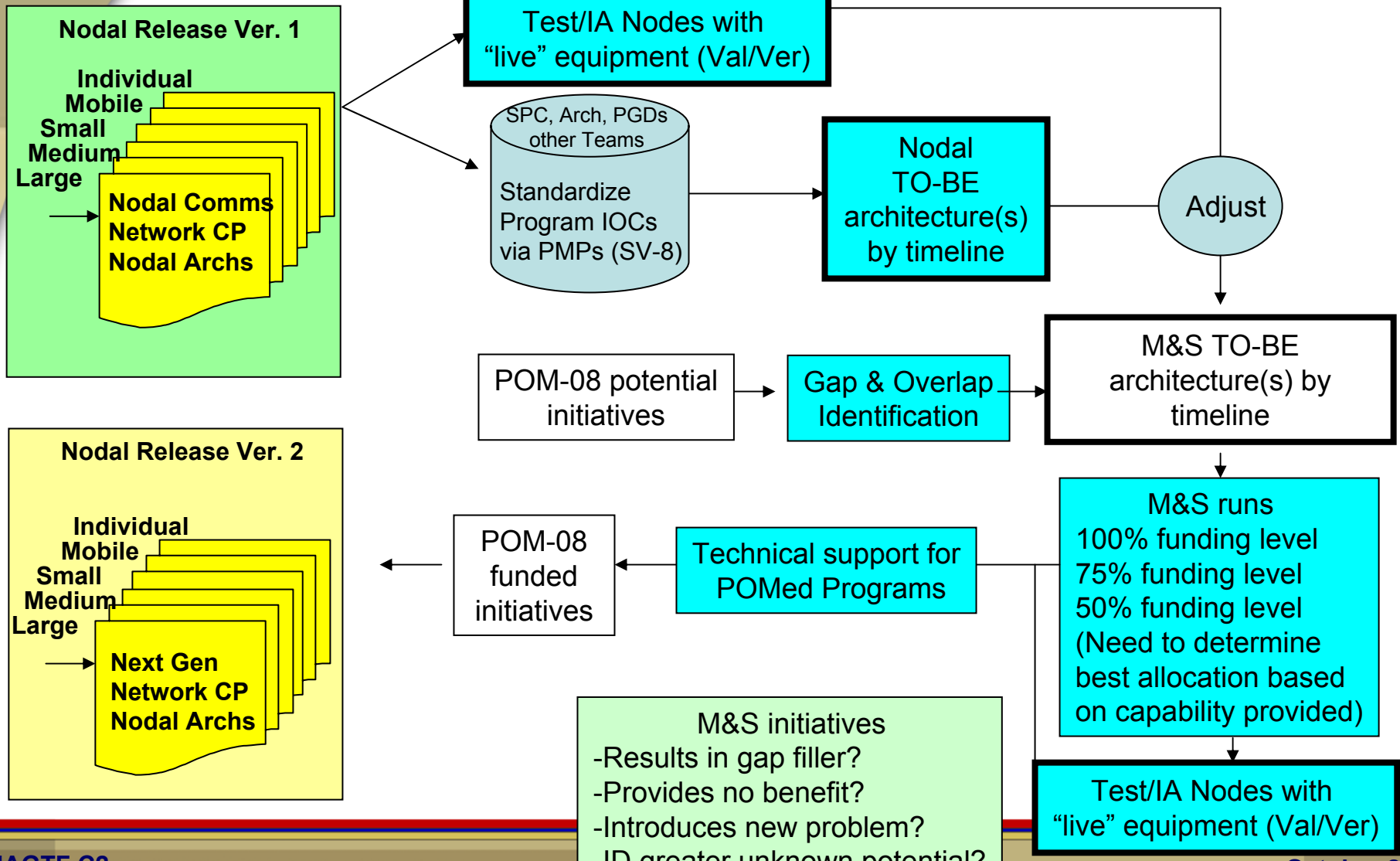
Nodal Release #2



Architecture Build



Strategic Planning Process



Concepts, Capabilities, & Requirements Generation

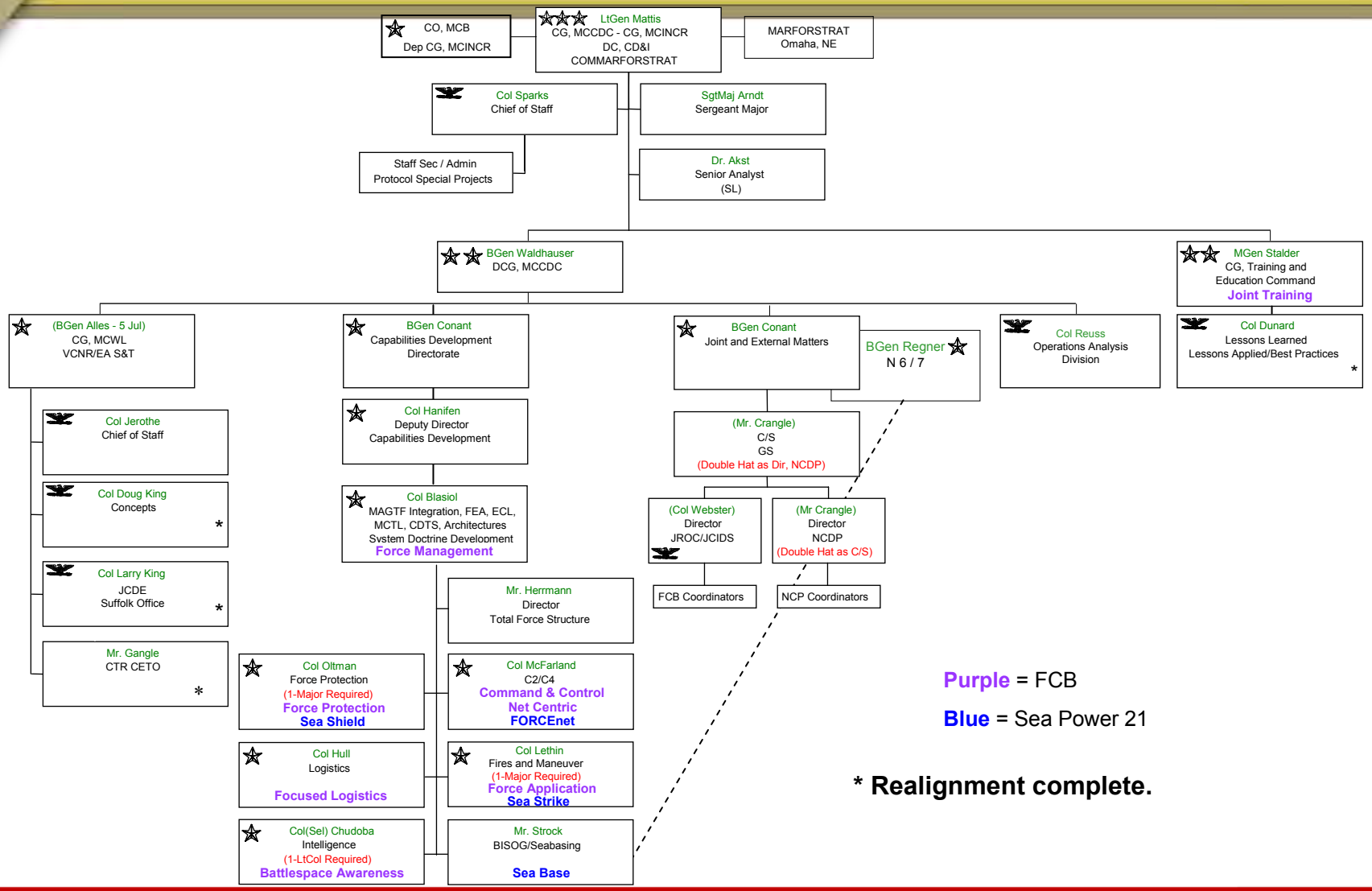
Commanding Generals Combined Arms Center (CAC) & Marine Corps Combat Development Command (MCCDC) sign MOU Jun 05 to manage LandWarNet (BC) & MAGTF C2 development:

- Overarching “combat development” umbrella document
- Doctrine / functional concept / capability development coordination
- Capability decomposition and metric development
- Joint requirements generation
- Integrated architecture development
- Conduct risk mitigation
- Coordinate S&T efforts
- Guide systems development, interoperability, & integration

Agenda

- C2 Integration Division
- MAGTF C2 Transition Strategy
- MAGTF C2 Campaign Plan
- Programs of Record (PORs)
- MAGTF C2 Combat Operations Center (COC)
- Common, Modular, & Scaleable

MCCDC Combat Development Organization

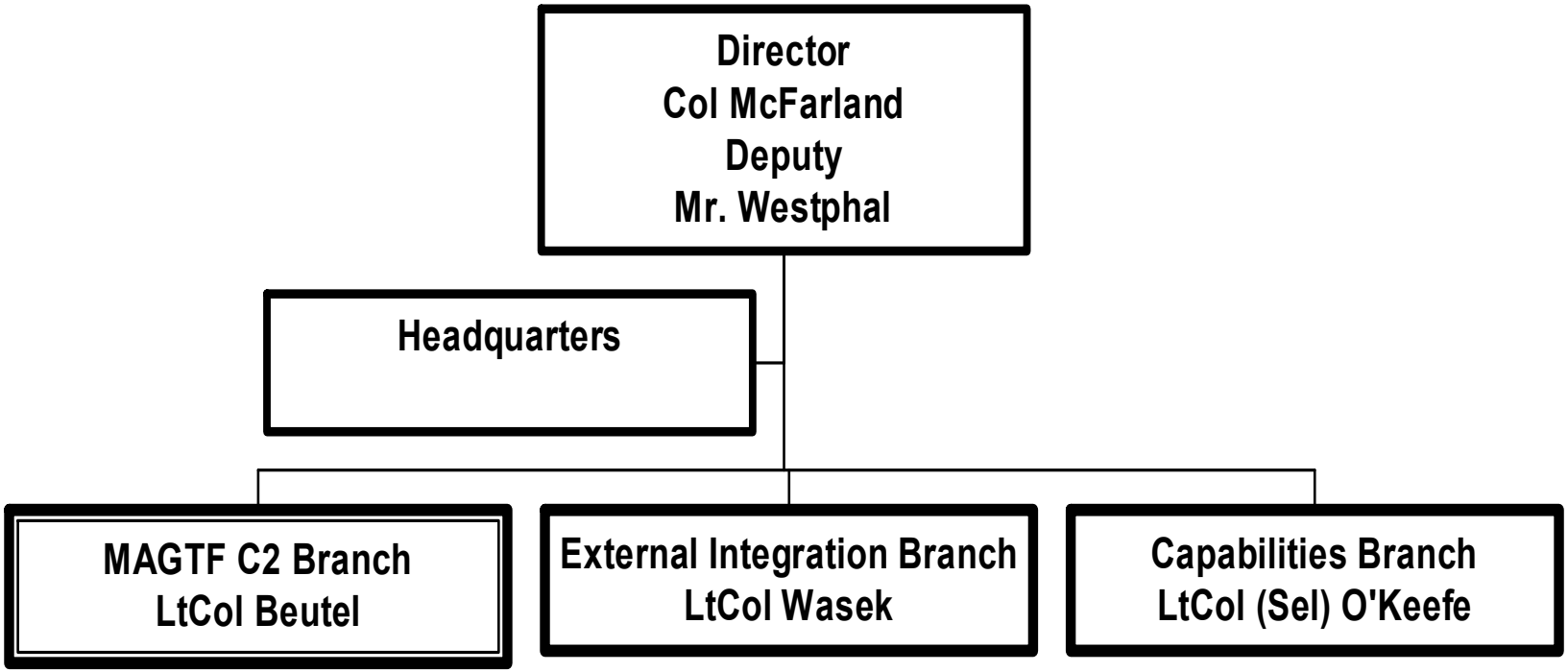


Purple = FCB

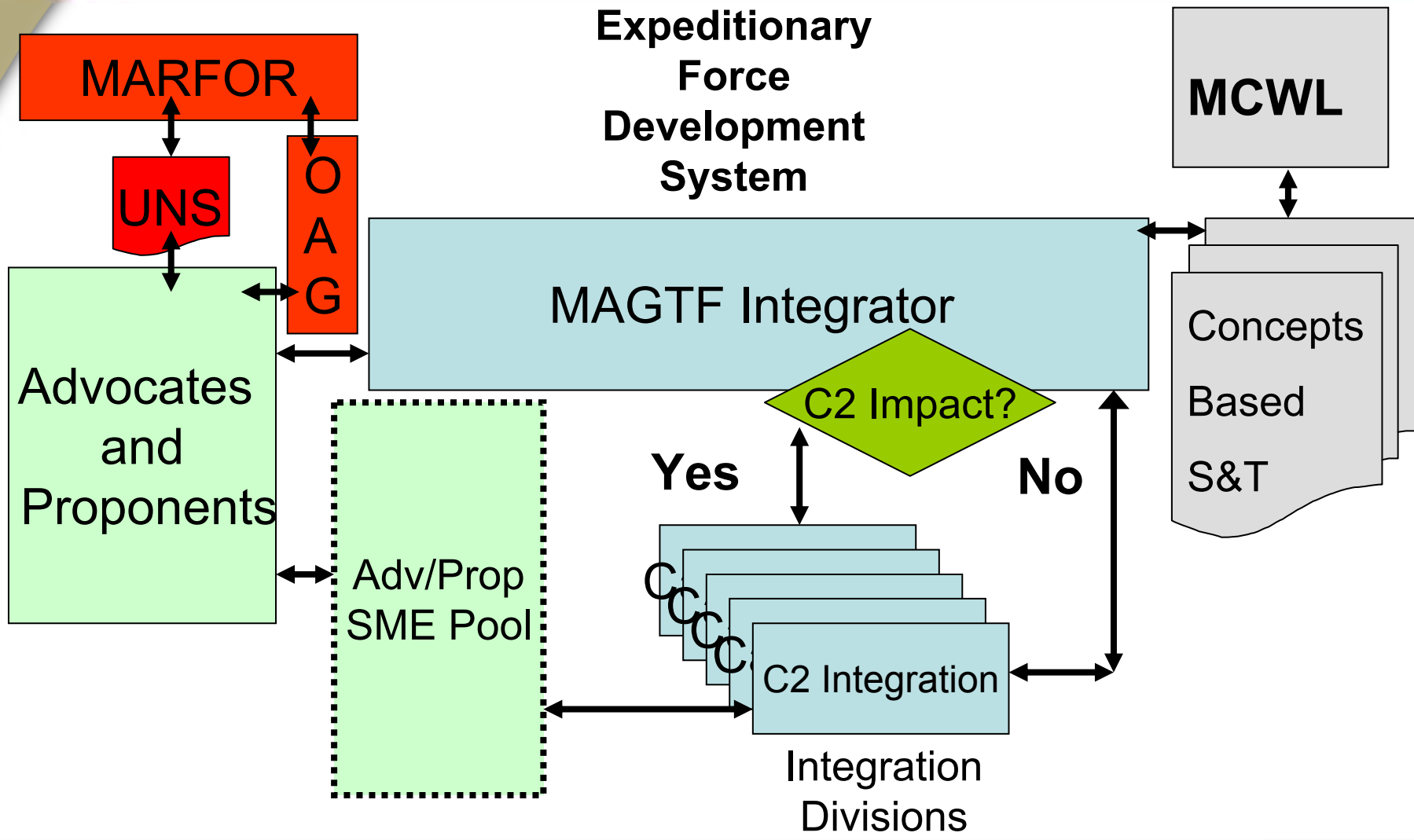
Blue = Sea Power 21

*** Realignment complete.**

C2 Integration Division



Governance/Advocacy Process for C2 Issues



Background

- **Traceable to MAGTF OC requirements circa 1997**
- **MROC Decision MROC DM2004**
  - C2 capabilities and related programs must be approached in a "holistic manner."
  - Inter-relationship and inter-dependency of C2 programs must be considered
  - Provide required capabilities to elements of the MAGTF from garrison to tactical environment as seamlessly as possible.

MAGTF C2 Vision

- ***MAGTF C2 enhances lethality and effectiveness across the range of military operations through better decision making and shared understanding.***
- ***It is an intuitive & holistic environment of people, processes, and technology that enables network-centric operations throughout the enterprise, & empowers the innate initiative of warfighters at all levels in the context of the commander's intent***
  - *A strategy to harmonize all aspects of command and control concepts, requirements, training, and doctrine.*
  - *A process to provide governance over the C2 community to ensure that we meet the objectives of the strategy across the enterprise*
  - *A system that will provide common, modular, and scalable material solutions from the lowest tactical level across the MAGTF at all echelons*

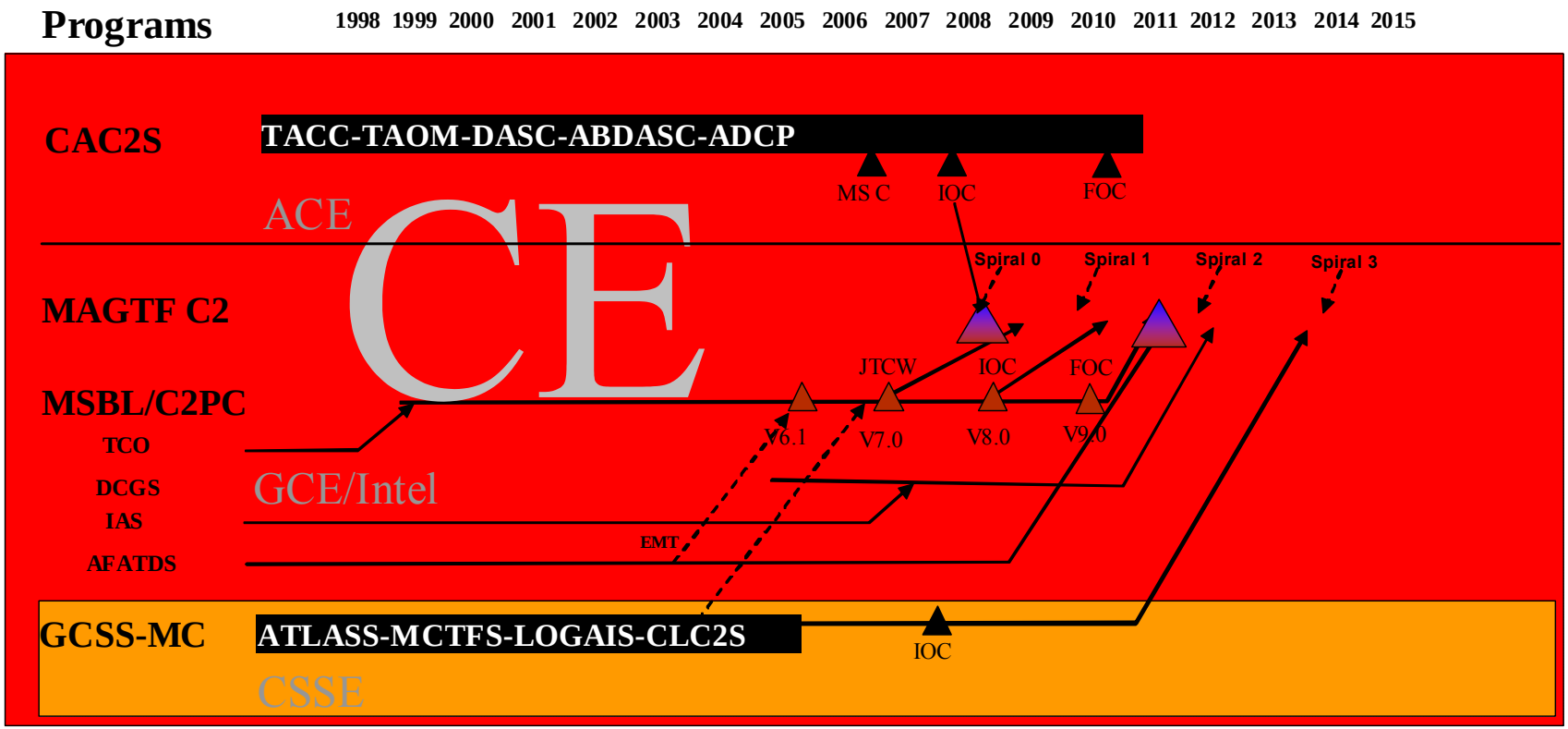
Layer Terms of Reference

- **Systems (Applications & End User Equipment):** End User information technology programs (software) and equipment (hardware) that enhance the ability to Command and Control.
- **Enterprise Services:** Provides the operating system and other supporting applications, services and interfaces (i.e., SDE, storage, collaboration, messaging, etc.) to users throughout the network.
- **Network:** Provides basic DISN services pulled from the GIG; DSN, the IP backbone (NIPRnet and SIPRnet) connectivity to the GIG.
- **Bandwidth Tactical:** "The terrestrial bandwidth communications essential for the planning, directing, and controlling of fires, movements or maneuver within the operational area to accomplish missions and tasks"
- **Bandwidth Operational:** Provides mobile, robust, space-based bandwidth communications essential for the employment of military forces to attain strategic and/or operational objectives through the design, organization, integration and conduct of strategies, campaigns, major operations and battles.

Notional Binned PORs

Applications/ "End-User Interfaces" (MAGTF C2)	Enterprise Services (MCEITS)	Digital Backbone Services	Bandwidth / Transmission Systems --TACTICAL	Bandwidth / Transmission Systems -- OPERATIONAL
AFATDS	MCEITS	BTI	CONDOR	TROJAN SPIRIT
AL	DMS	LEGACY COMM	ECCS	SHF WIDEBAND
C2PC	PKI	JNMS	IBR	LMST
CAC2S	SDE	WCR	JSTARS	JCSE
DACT/BFSA		MCNOSC	JTRS	
GCCS/JC2		CTN	GBS	
GCCS/P3I		COMSEC	SMART-T	
GCSS-MC		NMCI	IISR	
IAS		TDN	LSWANN	
ISR		TSM/ULCS		
TPC				
TLDHS				
MACCS				
CACCTUS				
JWICS				
MCHS				
MSBL				
TBMCS				
TCO				
UOC				
MAGTF C2				
JSS				
SIAP				

MAGTF C2 Software Baseline Integration (recommended)

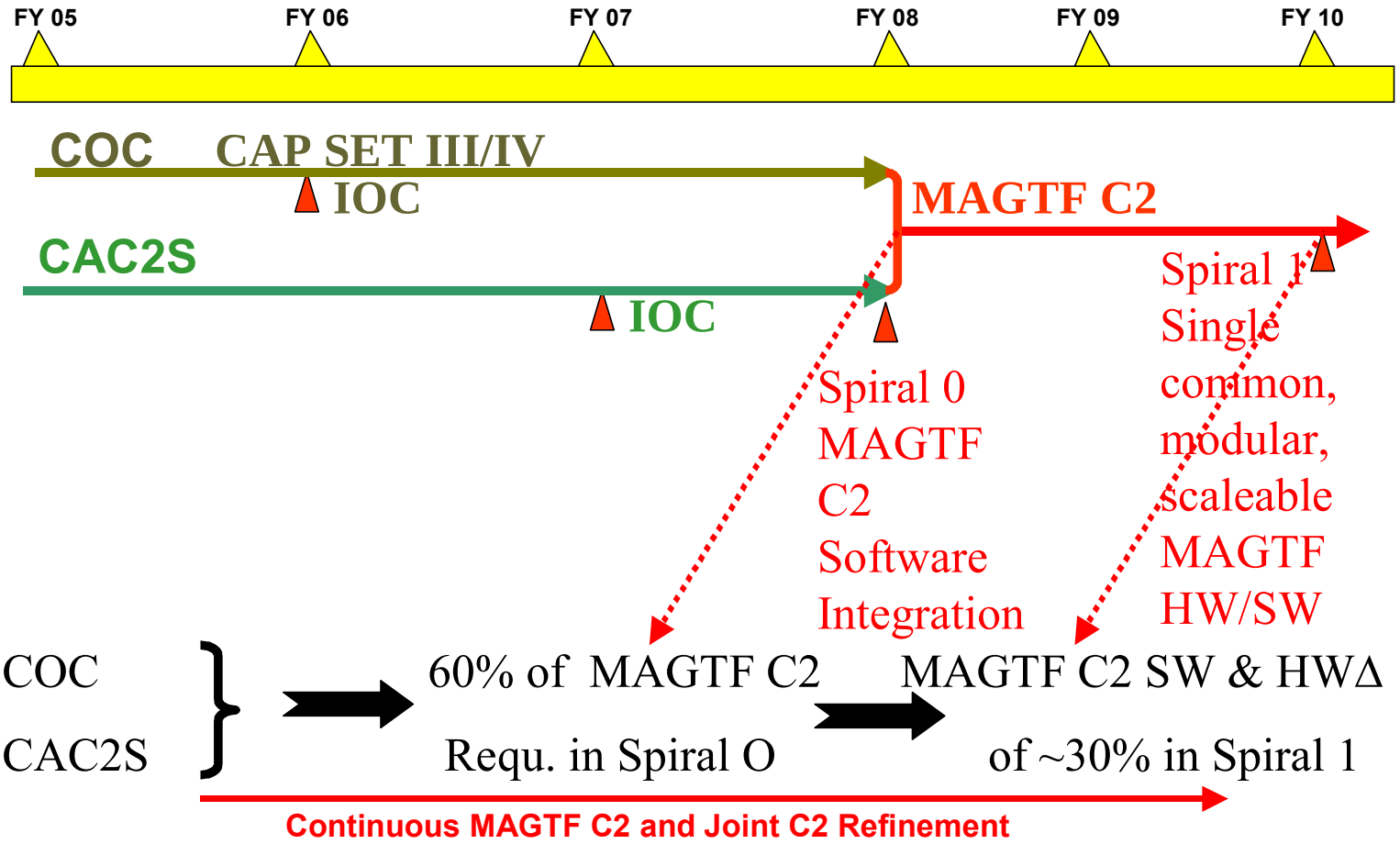


MAGTF COC Defined

- **<u>Combat Operations Center (COC):</u> generic term used to describe the body of specific capabilities for MAGTF C2 applications and OPFACs described in the Operational Requirements Document (ORD).**

- **ORD describes 4 capability sets (CAPSETs):**
  - CAPSET I: MEF-level COC
  - CAPSET II: MSC-level
  - CAPSET III: Regimental, MWSG, MEU, CSSD-level
  - CAPSET IV: Battalion, MAG, MWSS, CSSD-level

COC & CAC2S to MAGTF C2



COC Applications Today



MEF Battlespace



Deep Battle



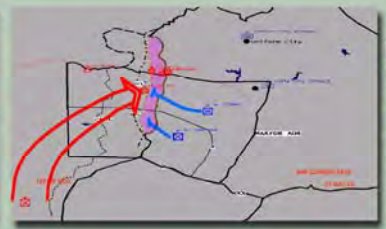
Graphical Op Oder



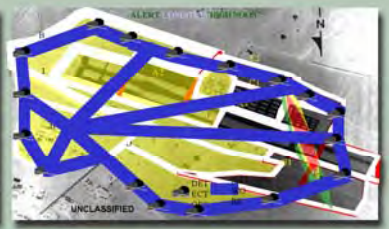
Theater



Op Intel



Close Battle



CTT/JWARN

Un-Fused Tactical Picture

Command SA Requires Manual Viewing of 5-10 Tiled Pictures

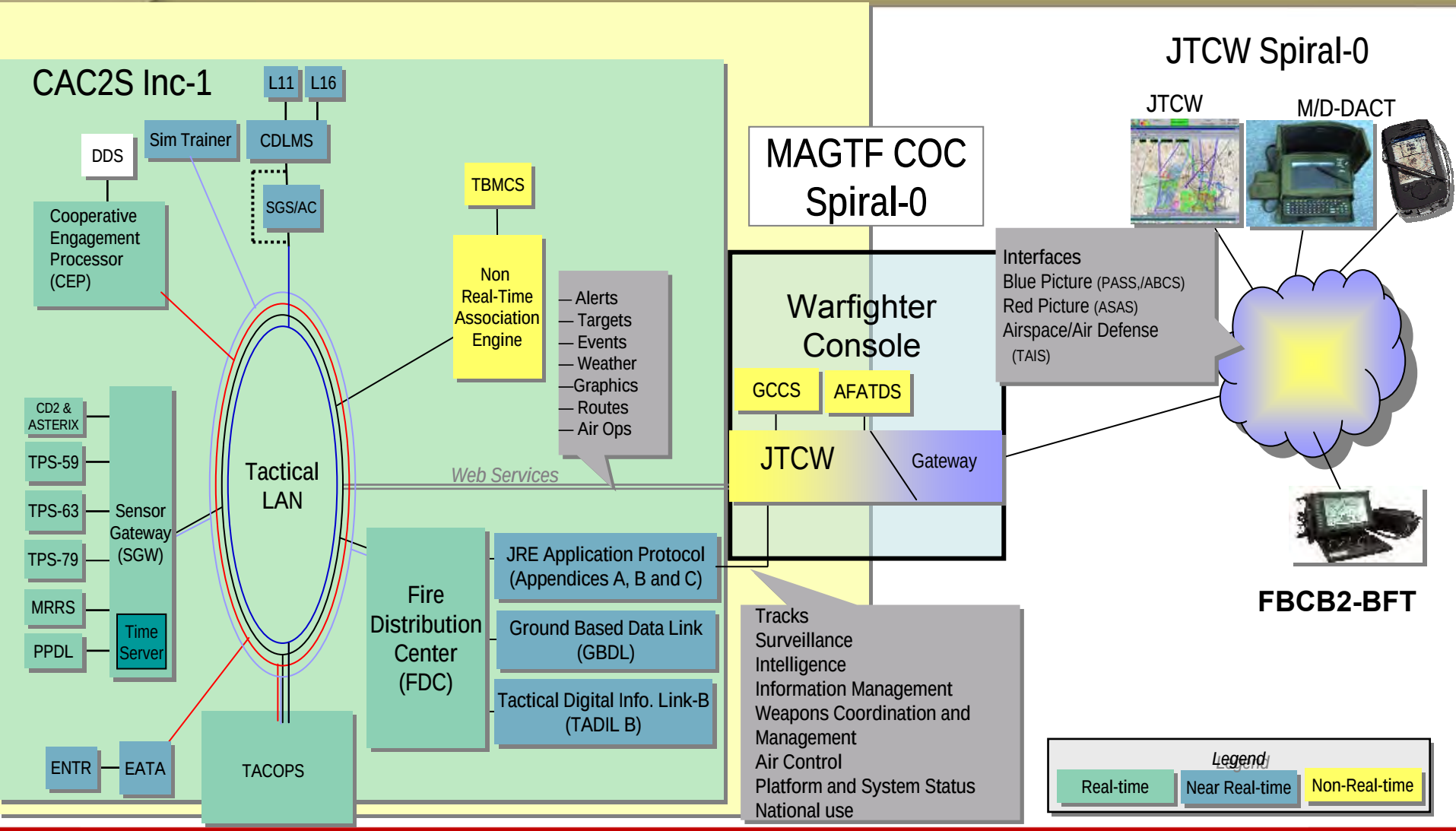
MAGTF COC Crawl

- **CAC2S Increment 1 (FY 07 IOC)**
  - Ground picture with C2PC 6.2 and CAC2S capabilities in separate windows
  - Real time Air Picture
  - Near and Non-real time fusion
  - Integrated ground SA

MAGTF COC Walk

- **MAGTF C2 Spiral 0 (FY 08)**
  - Integrates CAC2S Increment 1 and C2PC version 7.0
    - All the capabilities inherent in CAC2S and C2PC on one screen
      - CLC2S (LOG) injectors
      - IOS (INTEL) Injectors
      - Real time air situation
      - Air tracks over ground FSCMs fused to TBMCS and AFATDS data
      - Integrated Air/Ground Picture
  - Increased interoperability (examples: JTCW & JBFSA)
  - Collaborative Expeditionary Planning for the entire MAGTF (WEEMC/JADOCS)
  - Improved modularity and scalability

MAGTF COC Spiral 0



MAGTF COC Run

- **MAGTF C2 Spiral 1 (FY-10) …..**
  - True fused C2 for planning, execution, COP, sensors and weapons within multifunction nodes
  - Truly scaleable, common, and modular across the MAGTF and at all echelons

Common, Modular, and Scaleable

- Common: MAGTF command echelons use the same equipment. Unique requirements, such as sensors and intel feeds, enter via standard gateway.
- Modular: System is designed to enable component utilization that logically supports a variety of configurations for various echelons of C2 across MAGTF.
- Scaleable: Software & hardware facilitate Battalion/ Squadron, Regimental/ Group, Division/Wing, & MEF-level command functions for COC by adding or subtracting common and modular components.



Marine Transportable

- Laptops for initial mission planning
- Continue Mission Planning in transit
- Initial capability ashore
- Liaison support



Marine Portable

- Task organized for mission requirements
- Operational Transit Case Configuration
- Plug into shipboard C4I systems– situational awareness
- Reach-Back Capability – reduced footprint ashore

COC

- Extend Naval C2 ashore
- Task organized
- Single or Multi-Function Nodes
- Full Array of C2 Functions
- Sensor integration
- Joint interoperability



MAGTF C2 Portfolio

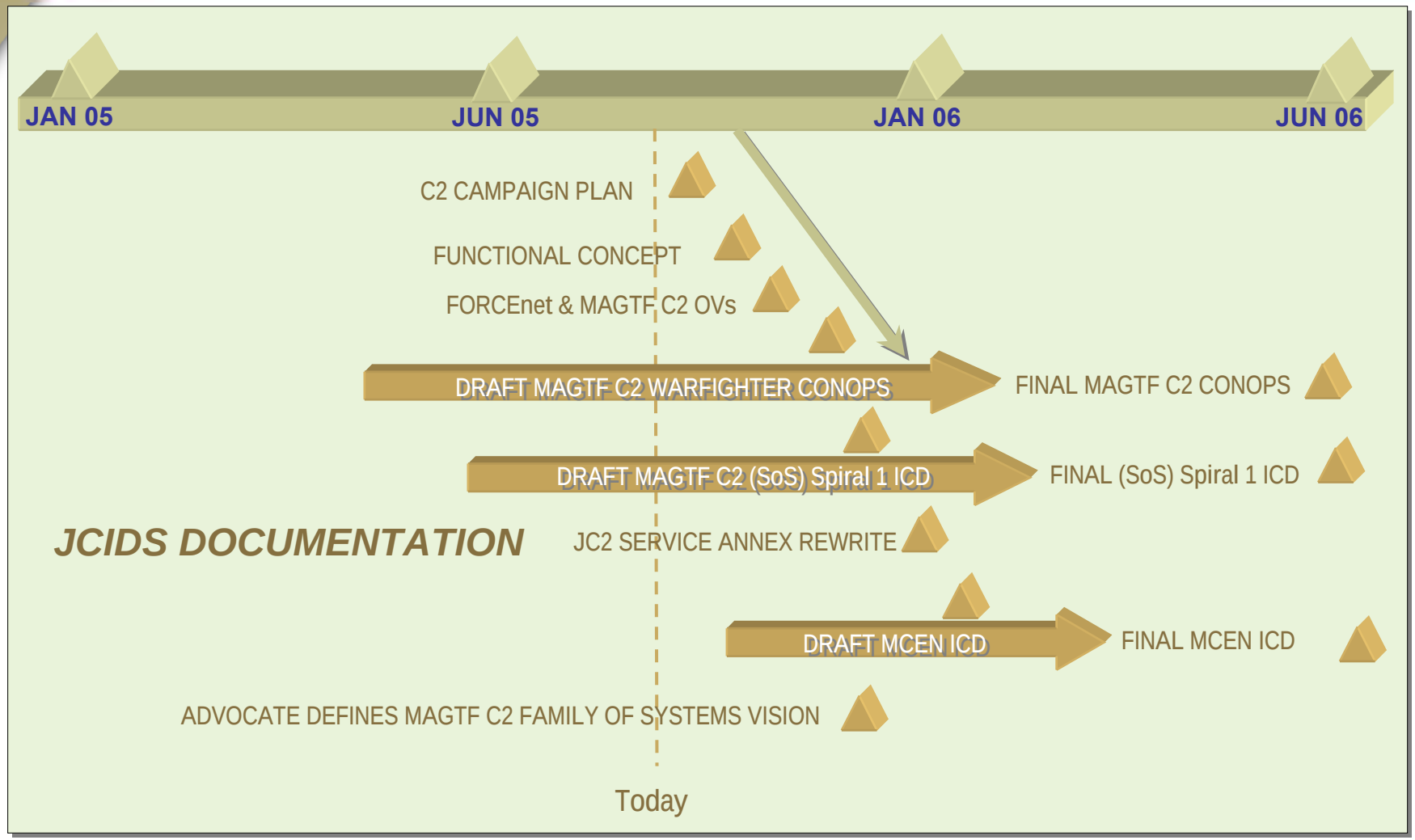
50 PORs in MAGTF C2 Portfolio

	TODAY	Spiral 0 S/W Build # PORs Integrated	Percent of Applications integrated in Spiral 0	Spiral 1-X
APPLICATION & SYSTEMS	23	14	50%	TBD
ENTERPRISE SERVICES	4	n/a	n/a	TBD
NETWORK	10	n/a	n/a	TBD
BANDWIDTH (TACTICAL)	9	n/a	n/a	TBD
BANDWIDTH (OPERATION)	4	n/a	n/a	TBD
TOTAL	**50**			

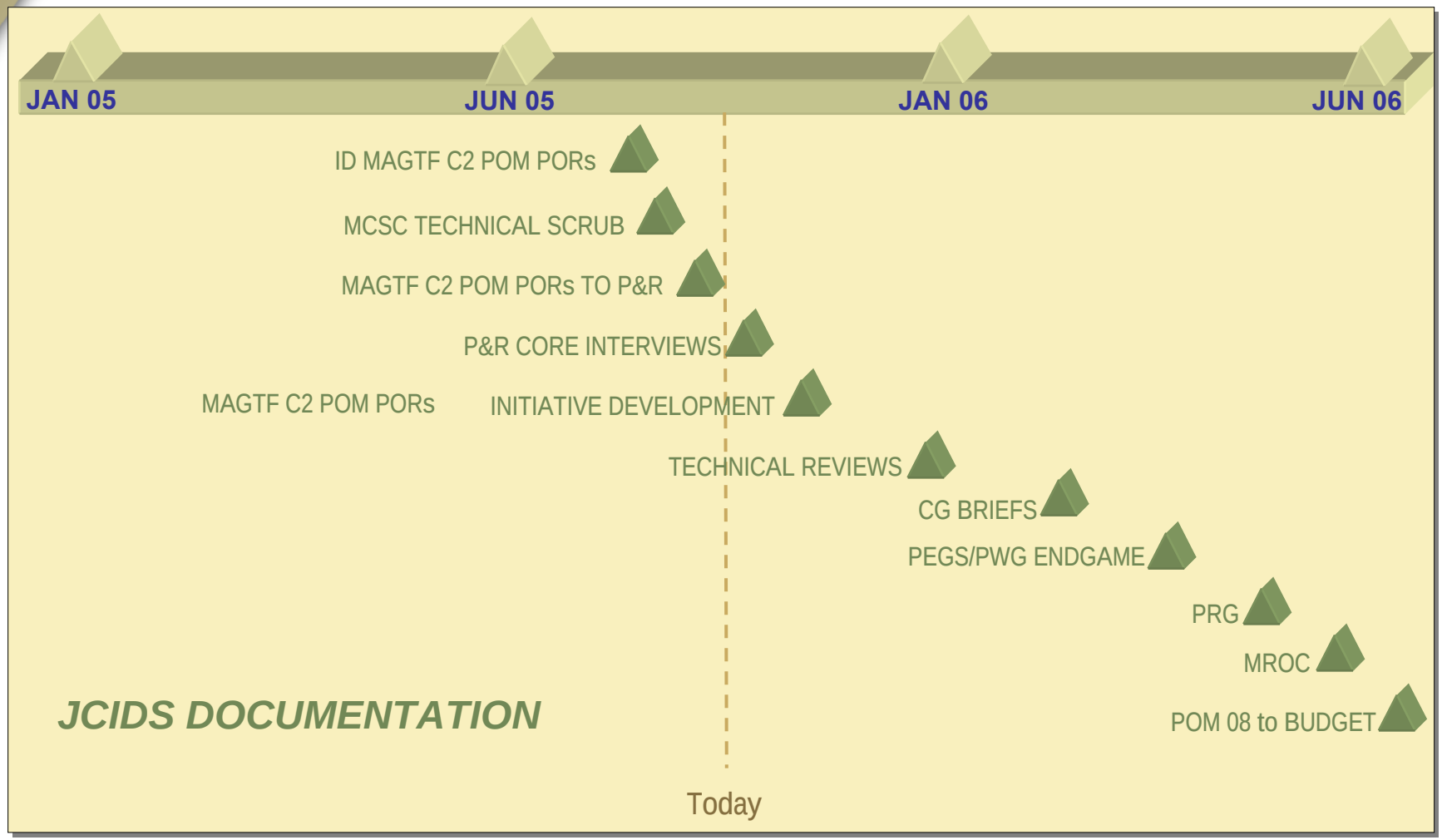
End-to-end MAGTF C2 Strategy

- **… a methodology for delivering an** "… end to end, fully integrated, cross functional set of MAGTF C2 capabilities that include forward deployed as well as reach back" **functions IAW MROC DMs 39-2004 & 29-2005**

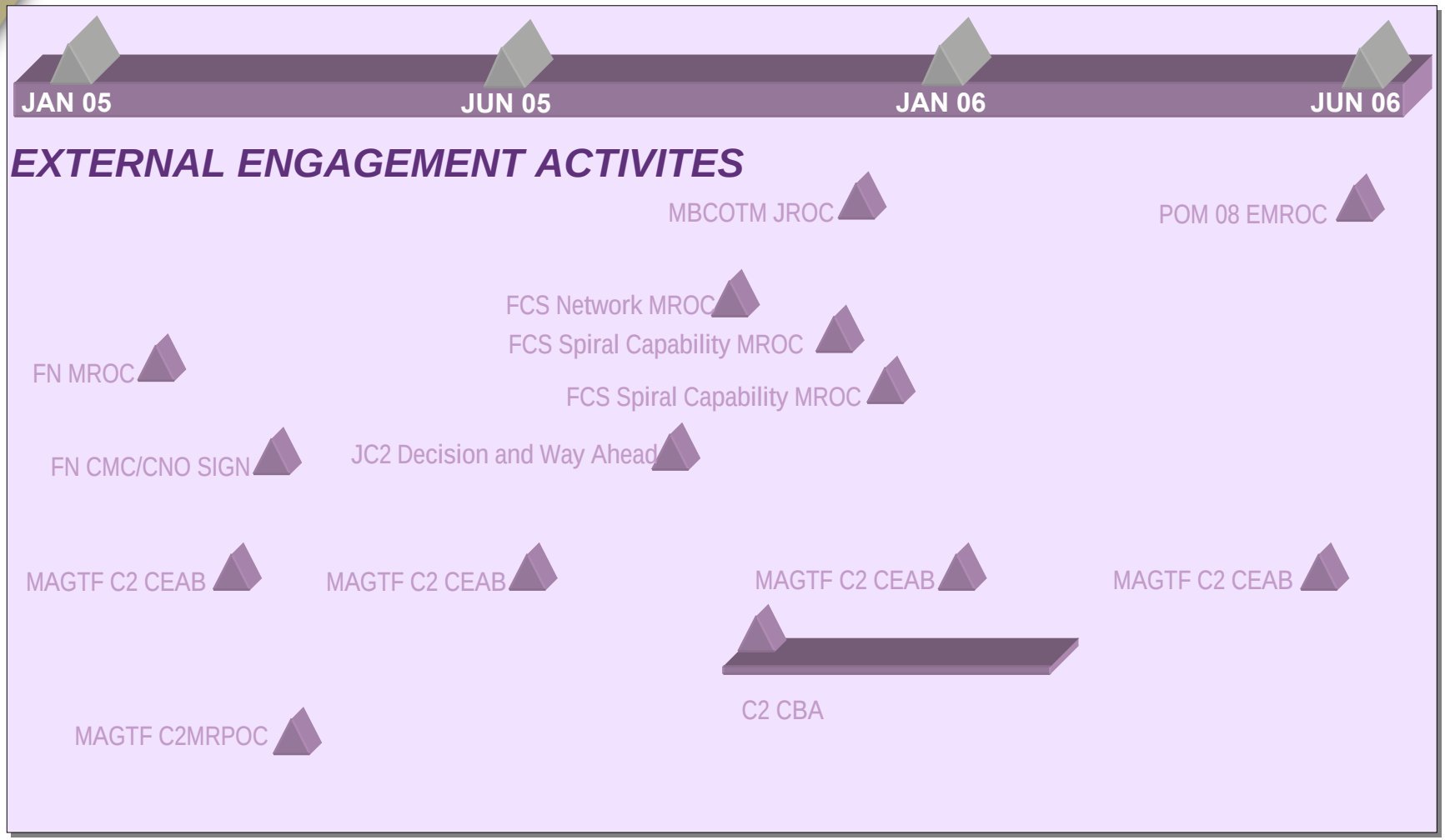
MAGTF C2 500 Day Plan



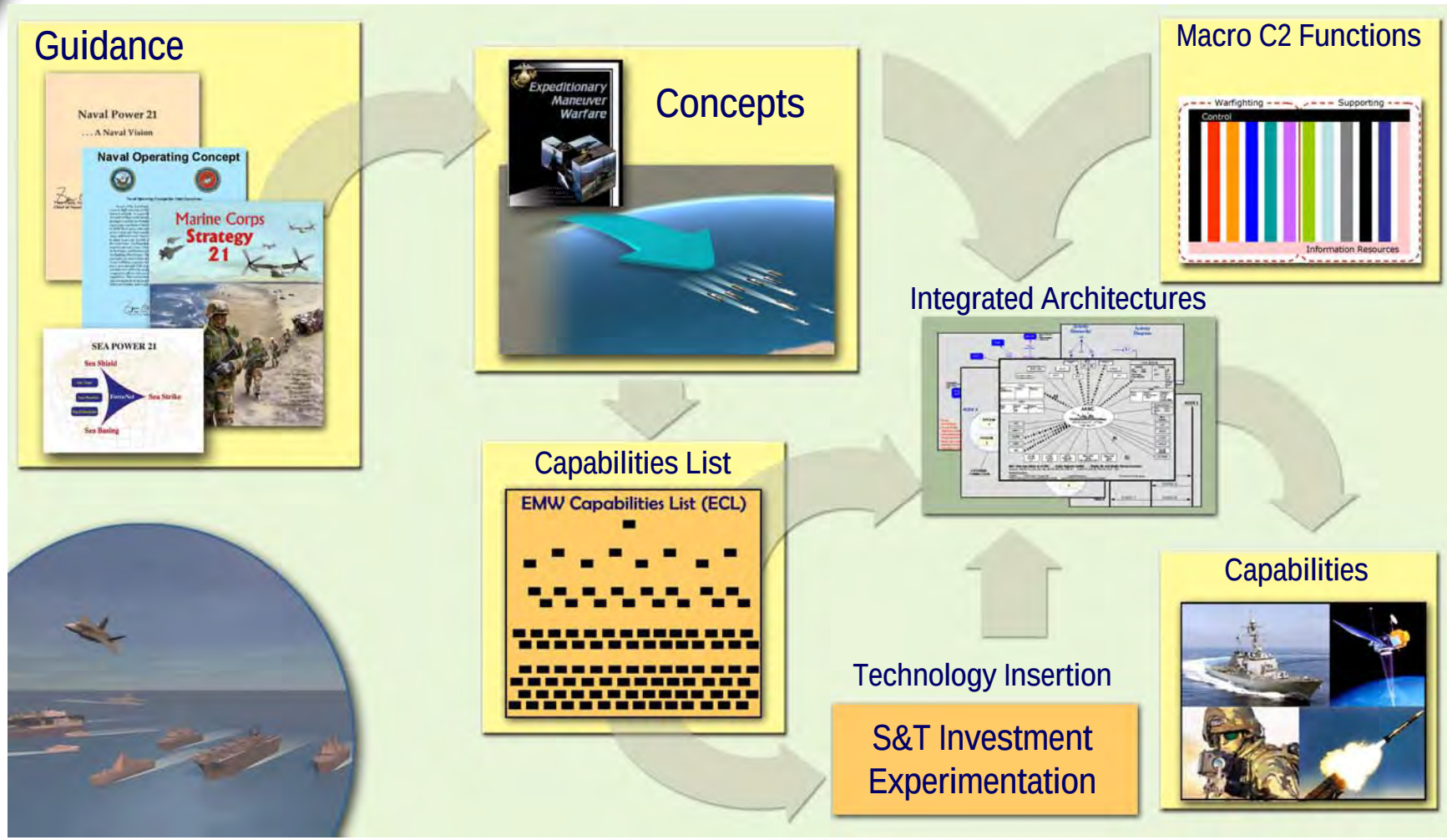
MAGTF C2 500 Day Plan



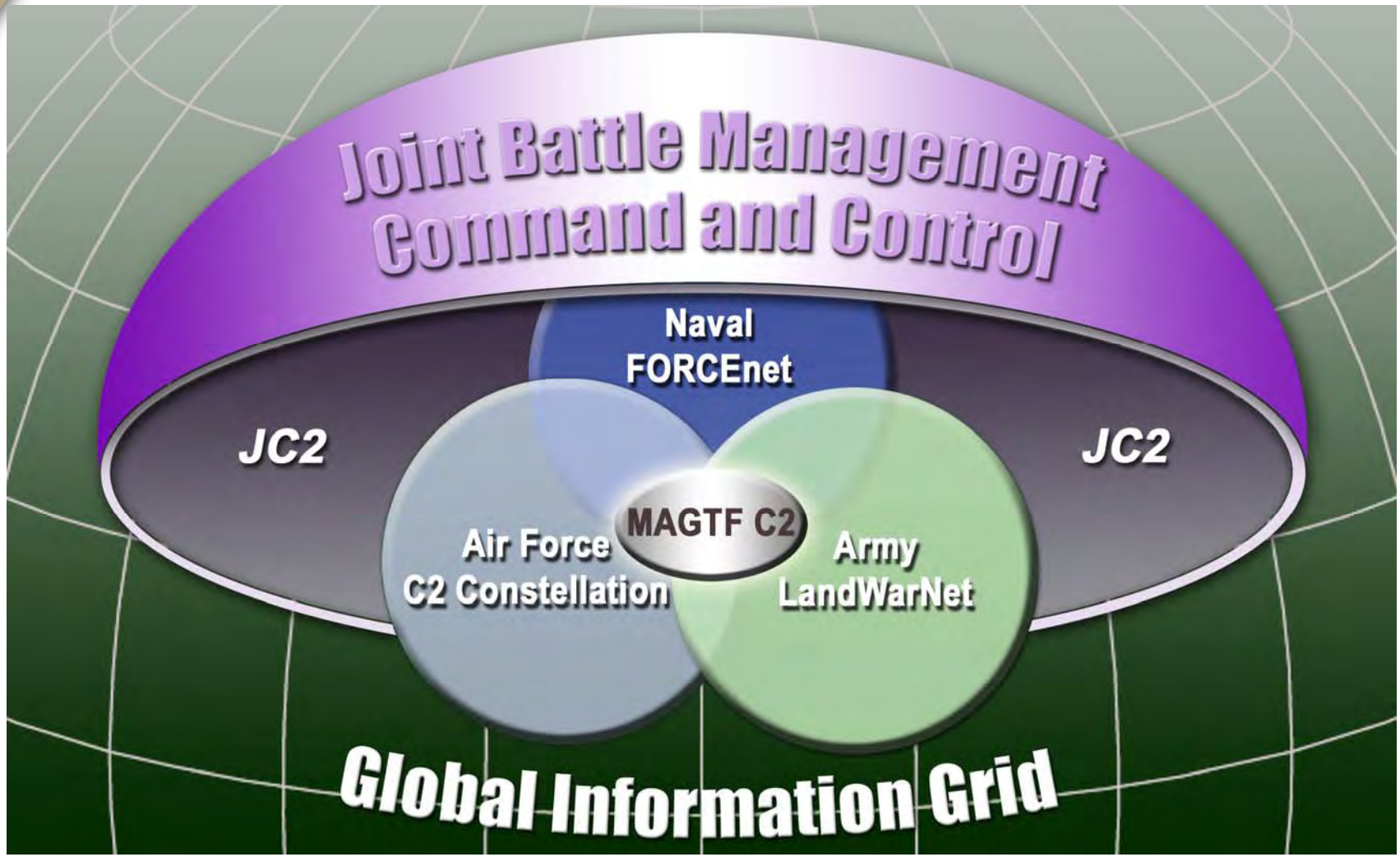
MAGTF C2 500 Day Plan



MAGTF C2 Strategy is based on a Concept-Based Development Process



MAGTF C2 Integrates into the Joint Architecture



Linked to the GIG through FORCEnet



FORCEnet Capabilities mapped to MAGTF C2 Layers

	Robust all nodes	Reliable status	Reliable tracking	Store/ retrieve	Process/analyze	Shareable/visible SA	Distributed Grp SA	Auto Decision Aides	Info assurance	Mult Sec Domains	Interop various sys	Disconnected ops	Self test/diagnose	Upgrade quickly	Enable rapid decision
Applications		X	X		X	X	X	X	X	X	X	X		X	X
Enterprise Services				X	X		X	X	X	X		X	X	X	
Network					X		X		X	X		X	X	X	
Bandwidth Tactical	X									X	X			X	
Bandwidth Operational	X									X	X			X	

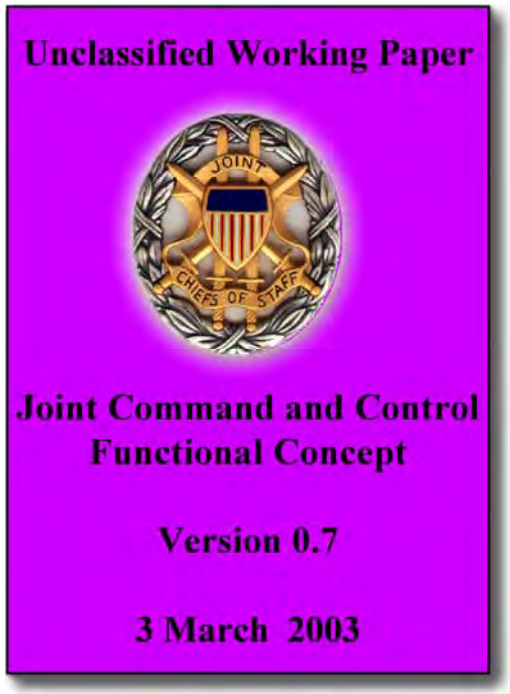
MAGTF C2 Center of Excellence

- Focal point for DOTMLPF implications of MAGTF C2 Strategy
- The C2 COE serves as the central Marine Corps agency for command and control training and education issues within the Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities (DOTMLPF) process in order to synchronize the art and science of MAGTF C2 training and education requirements from the individual warrior through all levels of MAGTF commanders and their staffs.

Way Ahead

- **Continue Detailed Requirements Traceability and program reviews while developing long-term strategy and Requirements Documentation ISO MAGTF C2 Spiral 1**
  - Draft MAGTF C2 Functional Concept
  - Draft C2 Campaign Plan
  - Draft MAGTF C2 Warfighter CONOPS
  - MAGTF C2 ICD
- **DC, CD BPT provide Programmatic guidance based on MAGTF C2 Strategy ISO POM-08 FEA**

JC2 Functional Attributes

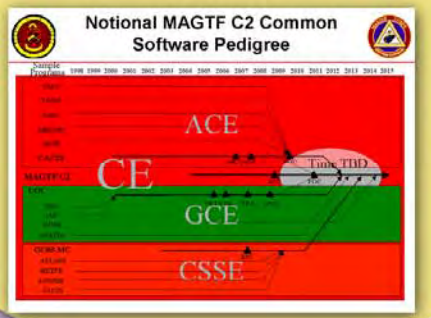


- Superior Decision Making
- Shared Understanding
- Flexible Synchronization
- Simultaneous C2 Processes
- Dispersed Command and Control
- Responsive & Tailorable Organizations
- Full Spectrum Integration
- Shared Quality Information
- Robust Networking

C2 Campaign Plan

"end to end C2" Strategy

C2 System



Enterprise Services
Support Structure

Marine Corps Enterprise Network

Tactical Bandwidth

Operational Bandwidth

FORCEnet

JBMC2/JC2

BACK UPs

Collaboration

- … is a powerful tool in achieving optimal solutions and overcoming disagreement. It enables us to function as part of a larger team, within our own staff, the DoD, the interagency, & ultimately with our Coalition partners. The power of a team is vastly superior to that of an individual--whether that team be composed of people or of nations.
- Standardized, interoperable, & readily available tools, which facilitate collaboration across a broad set of partners, are needed. Such collaboration tools can help us overcome the tyrannies of time and distance and enhance speed and precision in execution. Common operating pictures and common data packaging are essential. We must create or adopt those tools with the greatest applicability.

16th CHAIRMAN'S GUIDANCE TO THE JOINT STAFF 1 Oct 05

Collaborative Areas

- **Operational Capabilities & Requirements**
- **Architectures**
- **Training**
- **Programs**
  - Contractual Requirements
  - Development
  - Test and Evaluation
  - Fielding
  - Sustainment

Acquisition & Systems Commands

Memorandums of Agreement (MOAs)

Command and Control

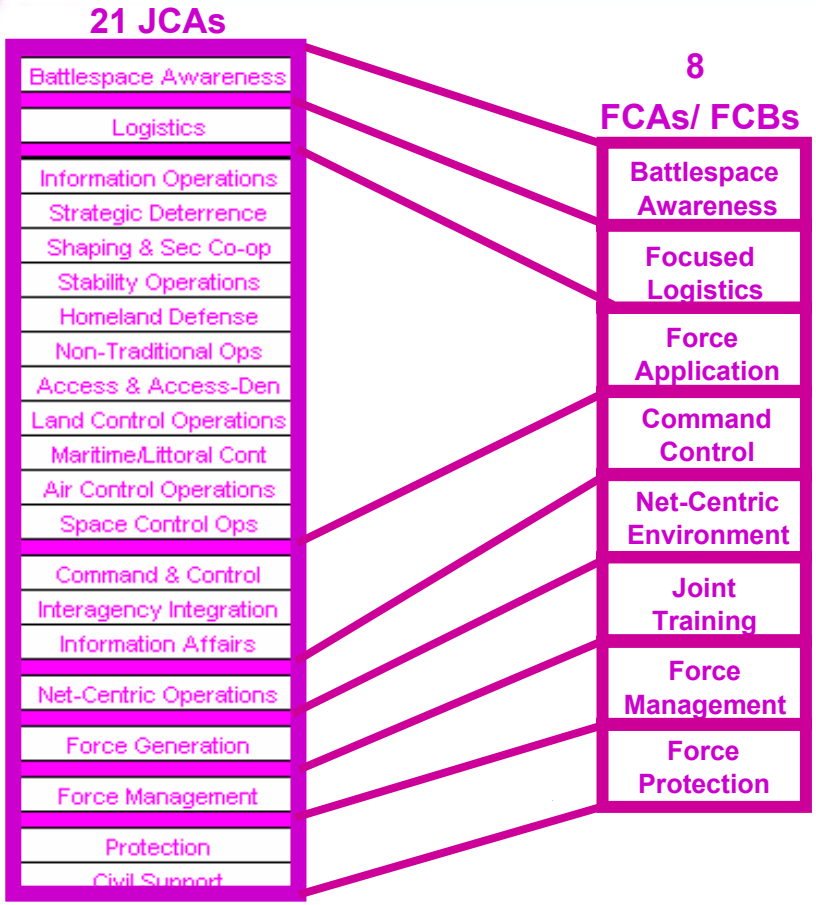
- Common Ground Tactical Communications Architecture
- Maneuver Control System (MCS) Migration to Joint Tactical COP Workstation (JTCW)
- Single Platform / Dismounted C2/Situational Awareness (SA)
- USMC/USA FCS Unit of Action (UA) C4ISR Systems
- Joint Warning and Reporting Network (JWARN) Management
- Joint Combat Identification Marking Systems (JCIMS) Development

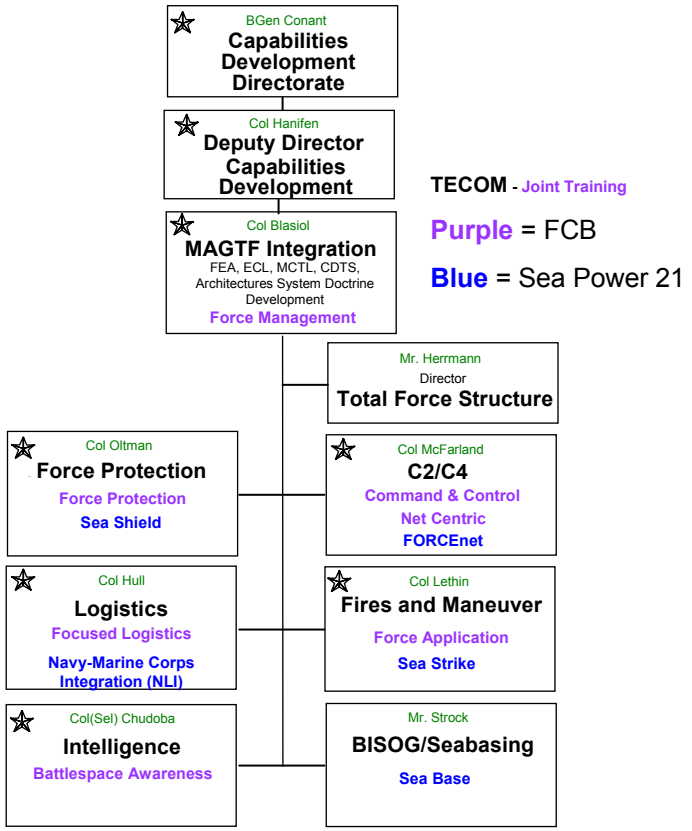
HQMC

REALIGNMENT MEETING

19 AUG 05

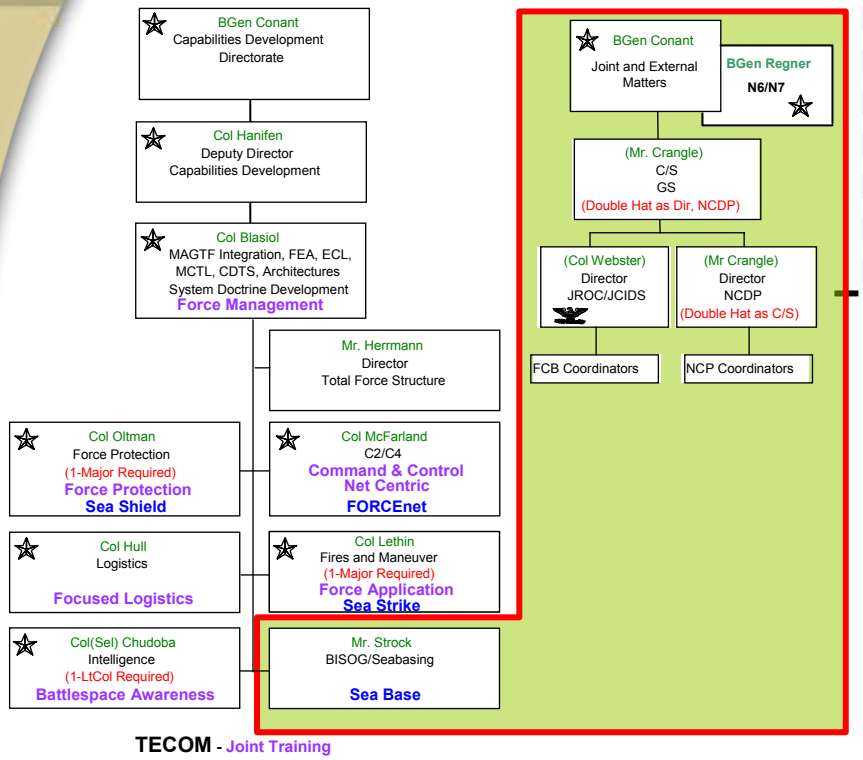
CDD Directorate FCB/SP 21 Mapping





NOTE: **Force Management** is too diverse for a single Integration Division to manage. **Battlespace Awareness** shares both Intelligence and Command & Control. For "span of control" management, Battlespace Awareness was placed under Intelligence.

Joint & Navy Combat Development Integration



TECOM - Joint Training

Purple = FCB

Blue = Sea Power 21

[NOTE: BISOG applies to every Capability Directorate.]

BGen Regner
N 6 / N 7

"PROPOSED"

- Closely integrate the development of naval warfighting requirements of mutual concern to the Navy and Marine Corps.
- Designated N7M - report directly to the Head, Warfare Integration (N7F).
- Direct access throughout the N6/7 directorate.
- Coordinate between the OPNAV and HQMC staffs as necessary to ensure a full and balanced consideration of Marine Corps equities in NCDP
- This officer shall:
  - Arrange for Marine Corps GO & SMEs as necessary to support NCP/MCP development (i.e., seminars, wargames, offsite);
  - Attend N6/7 and N7F staff meetings; provide summaries as appropriate to DC(CDI) & DC(P&R);
  - Arrange for additional Marine Corps participation/representation at N6/7 and N7F staff meetings as appropriate;
  - Prepare, review & deliver reports & presentations as appropriate to the N6/7 N-codes and the 3* BOD, reflecting Marine Corps assessments of the NCDP;
  - Prepare, review & deliver reports & presentations as appropriate to the HQMC staff, the MRB & MROC, reflecting Marine Corps assessments of the NCDP;
  - Review and comment and/or arrange for Marine Corps staff review and comment on OPNAV NCDP documents to reflect MC assessments.
- DC, CD&I - Reporting Senior. N7F will provide FITREP comments
- Nothing in the MOA will be construed as limiting, marginalizing or replacing the authorities vested in the Head, Expeditionary Warfare (N75) pursuant to 10 USC 5038.

DC, CD&I and DC, P&R Venture: Tomorrow's PPBES

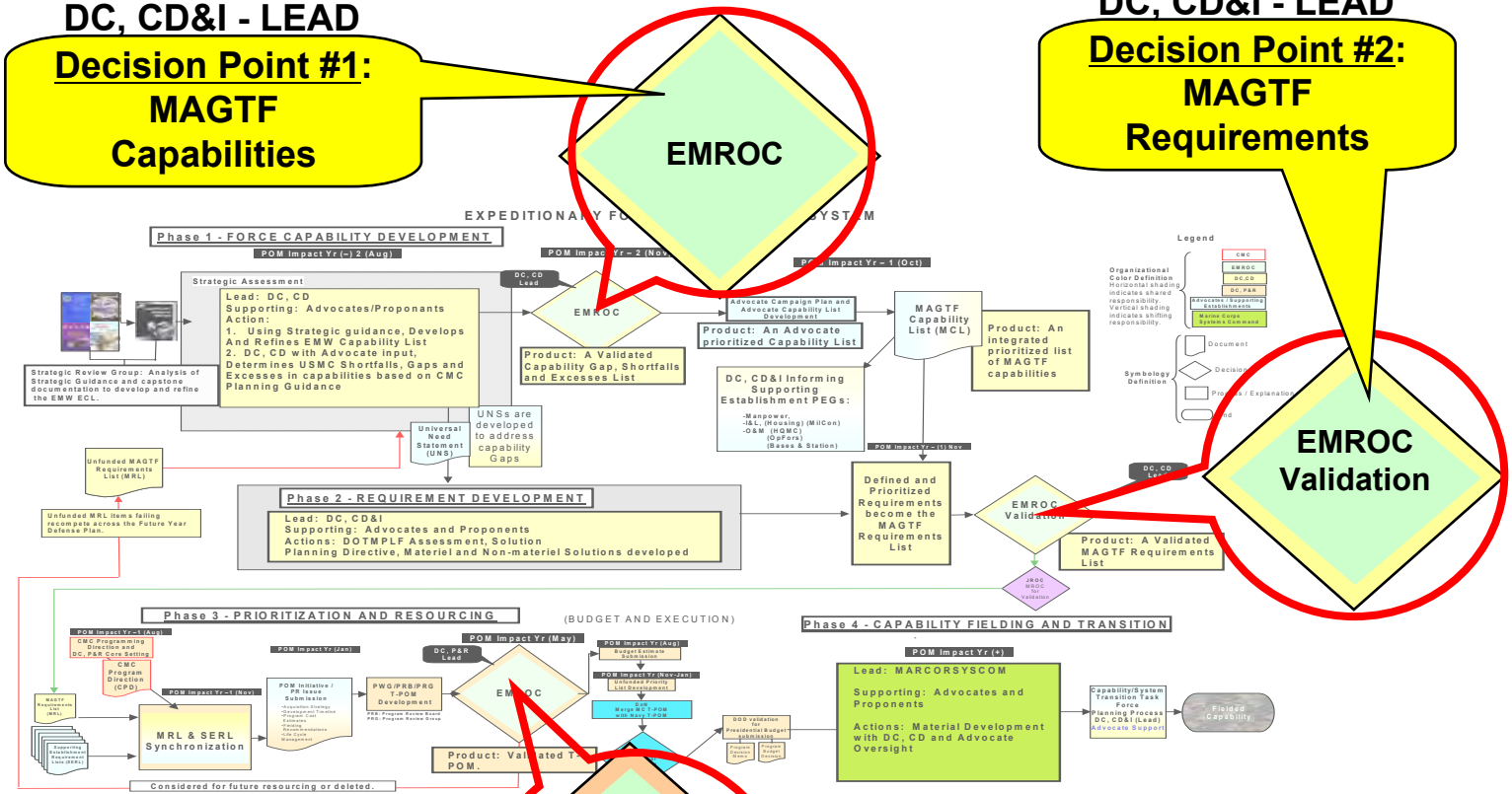
A Mutually Supporting Combat Development and Resource Allocation Process

DC, CD&I - LEAD

Decision Point #1: MAGTF Capabilities

DC, CD&I - LEAD

Decision Point #2: MAGTF Requirements



DC, P&R - LEAD

Decision Point #3: Program Objective Memorandum

UUNS Process

"SEAMLESS" to Combat Development Reorganization

OPERATORS initiates UUNS

MARFORs **MARCENT**

The Combat Development Reorganization can implement MARADMIN 424/04 "UUNS Process" seamlessly at any time during the PPBE process . The reorganization is designed to foster an "Integration Environment" that can more smoothly and efficiently receive a capability need, conduct DOTMLPF assessments, obtain MROC decision, and procure/deliver the capability within the target timeline of 90 days.

DC, CD&I - MAGTF INT DIV (MID)

- Assigned to manage Universal Needs Statements / UUNS. (includes MROC coordination/brief)
- Coordination authority over INT DIVs.
- Leads the mitigation process for issues concerning Advocates, Proponents, and MARFORs.

INT DIVs

- Structured to conduct existing DWG activity
- Determine Materiel / Non- materiel solutions across DOTMLPF pillars

AVN **C4** **PP&O**

TECOM **MARFORs** **TFS**

SMEs **C2I**

etc.

MCSC

- Materiel Solutions
- Funding
- Procurement and Delivery actions

30 Days

MROC

90 Days

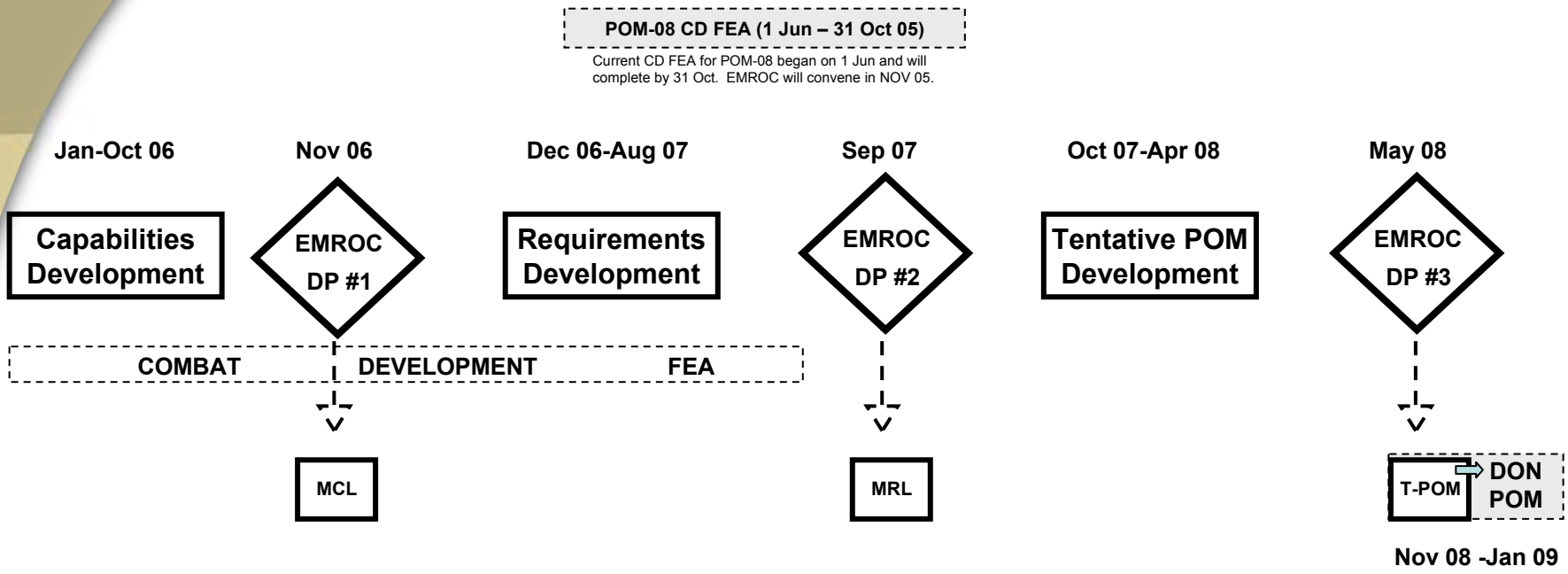
EQP/SYS FIELDED

DC, CD&I MONITORS DOTMLPF EXECUTION

P & R

Adjudicates funding requirements beyond MCSC capability

Simplified PPBE (POM 10)



MAGTF Capability List (MCL).

- Integrated/Prioritized capabilities list
- Derived from the ECL/ACLs
- Identifies prioritized capabilities to compete in the POM process.

MAGTF Requirements List (MRL).

- MCL used as baseline
- Fiscally informed requirements list with assigned Relative Benefit Value (prioritization)
- Materiel / non-materiel alternatives identified
- Used to identify warfighting capabilities/programs and is synchronized with the **Supporting Establishment Requirements List (SERL)** to develop the Tentative POM

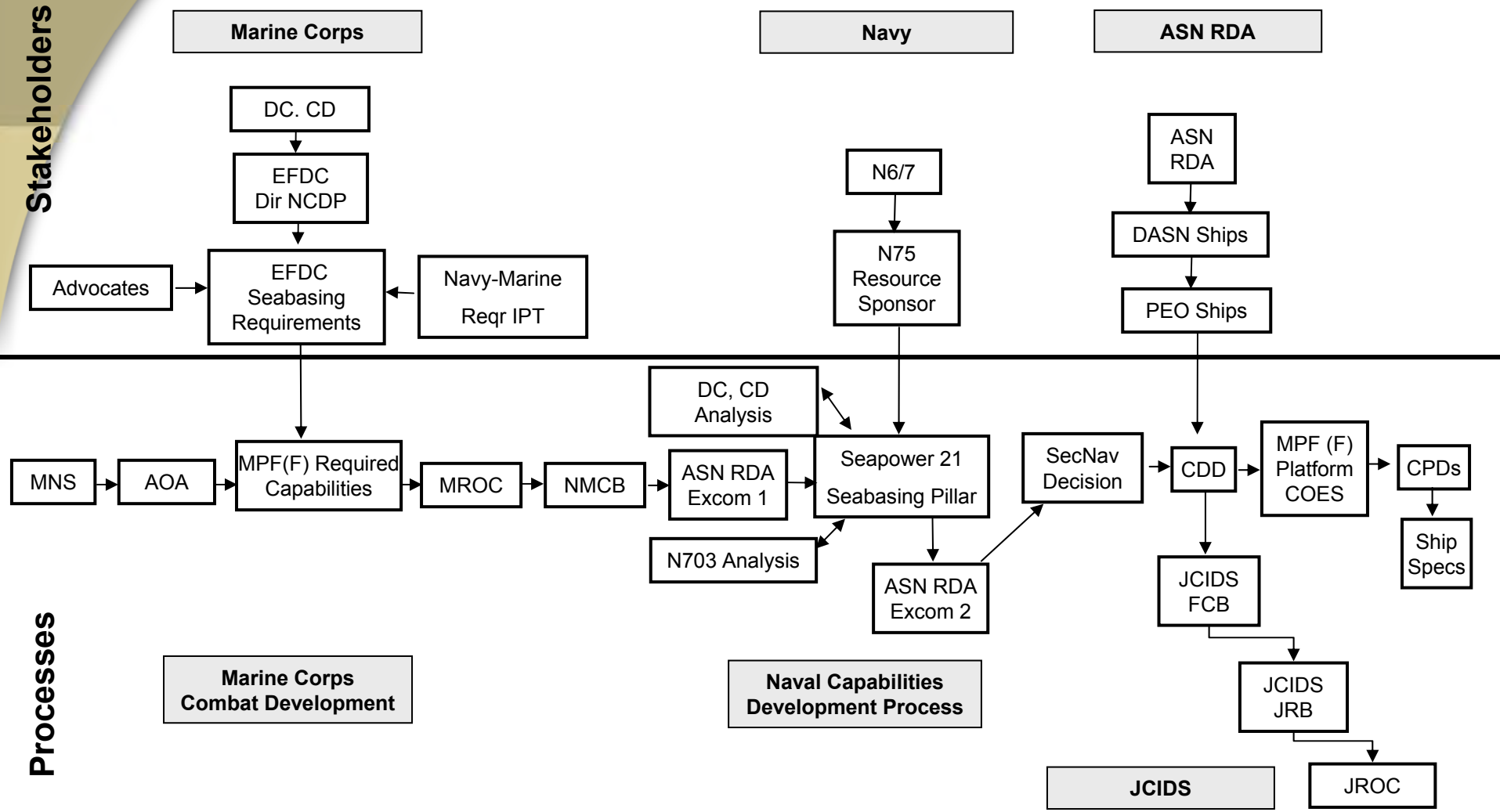
Tentative POM

- CMC approves
- Navy and Marine Corps T-POMs are combined into the DoN POM and submitted to SECDEF

BACK UPs

USMC CD – NCDP – JCIDS

MPF (F) Case Study



PPBE Present/Future

"How we did it – How we're doing it now"

Organizational Color Definition
Horizontal shading indicates collective efforts. DC, CD&I responsible to develop MCL & MRL

- EMROC
- DC,CD
- DC, P&R
- Advocates Proponents

PR 07
Adjustments to Future Year Defense Plan (FYDP)

CMC Initial Programming Guidance (AUG) · CMC IPR (SEP) · FEA PWG/PRB/PRG · FEA Irregular Warfare · Issues & Offset Dev (OCT) · CMC Programming Guidance (NOV) · Issues Due RPD (DEC) · PWG PRB (MAR) · EMROC (APR) · PRG · PR SEC NAV (JUN) · PR OSD (AUG)

JAN/04 · APR/04 · JUL/04 · OCT/04 · JAN/05 · APR/05 · JUL/05 · OCT/05 · JAN/06

JUN · AUG

Begin ECL-05 Development · POM-08 Dev Plan

POM 08

MAY · JUN · NOV

CMC strategic vision 21st Century Marine Corps" · FEA · Complete 31 Oct · CMC COA DEC · Publish ECL-05 · POM-08 Final Dev Plan · Draft ACLs For FEA · FEA POM-08 COAs

MAR · APR

MRL & SERL Dev Synchronization · PWG/ PRB/PRG T-POM Dev · W/F PEGs INT PEG · MRL

MAY/06 · EMROC · T-POM

NOTE: Past years, EFDS and POM were not aligned by calendar dates.

"How we need to do it"

NOTE: No longer a need for the Warfighting System PEG

PR 09
Adjustments to Future Year Defense Plan (FYDP)

CMC Initial Programming Guidance (AUG) · Issues & Offset Dev · CMC Programming Guidance (NOV) · Issues Due RPD (DEC) · PWG PRB (MAR) · EMROC (APR) · PRG · PR SEC NAV (JUN) · PR OSD (AUG)

Non Warfighting System PEGs · Database Building

JAN/06 · APR/06 · JUL/06 · OCT/06 · JAN/07 · APR/07 · JUL/07 · OCT/07 · JAN/08

OCT · NOV · SEP

FEA

Functional Area Analysis (FAA): CAPABILITIES, TASKS, ATTRIBUTES, & METRICS

Functional Needs Analysis (FNA): GAPS, SHORTFALLS, EXCESSES, & RISK AREAS

EMROC DP #1

Functional Solution Analysis (FSA): MATERIEL / NON MATERIEL SOLUTIONS DOTMLPF ANALYSIS

EMROC DP #2

MRL & SERL Synchronization · PWG/PRB/PRG T-POM Development

MAY/08 · EMROC DP #3 · T-POM

CPG Cap Dev · MCL · MRL

POM 10

Command Overview
27 October 2005

MARINE CORPS SYSTEMS COMMAND

UNITED STATES MARINE CORPS

The Warfighter...

Our Ultimate Customer...

Our Inspiration for Excellence



Rapid Acquisition to Support Today's Joint Operational Needs

Col M. J. Mulligan
Product Group Director
Infantry Weapon Systems
Marine Corps Systems Command

Agenda

- Introduction
- Organization
- Acquisition
- Urgent Universal Needs Statement
- Financials
- FY 2005 Supplemental

Mission

- To serve as the Commandant's principal agent for acquisition and sustainment of systems and equipment used by the Operating Forces to accomplish their warfighting mission.

Our Acquisition Role

- We acquire various types of equipment and systems to support the warfighter.



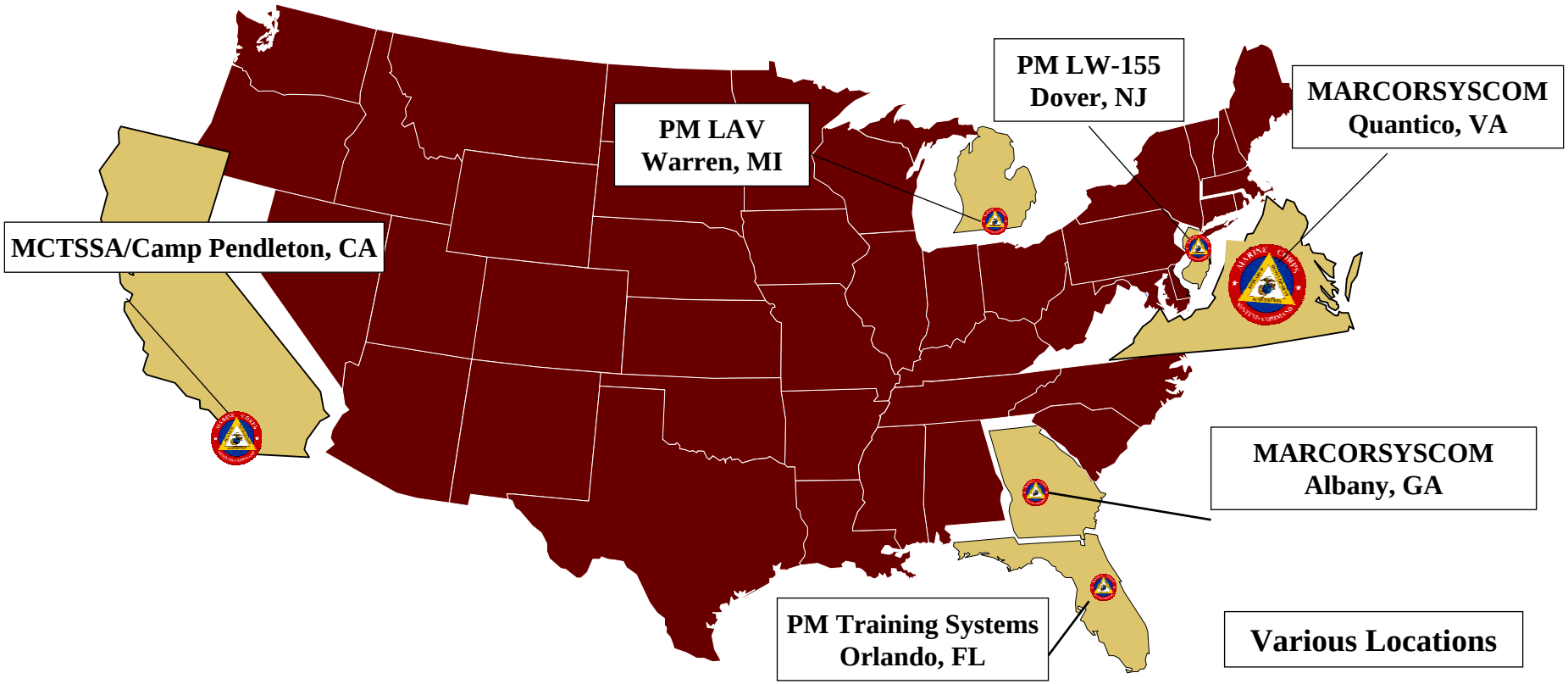
- We do not acquire air-craft.



Our Customers

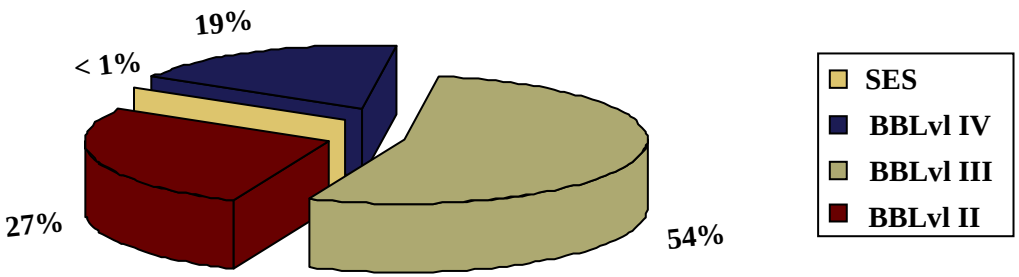
- We service multiple customers:
  - All MARFORs and MEFs
  - All Deputy Commandants
  - Joint and Coalition Forces

Workforce Locations

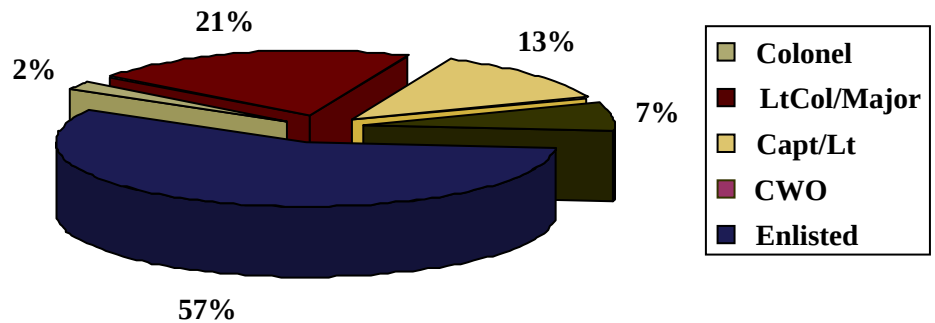


Workforce Demographics

Civilians

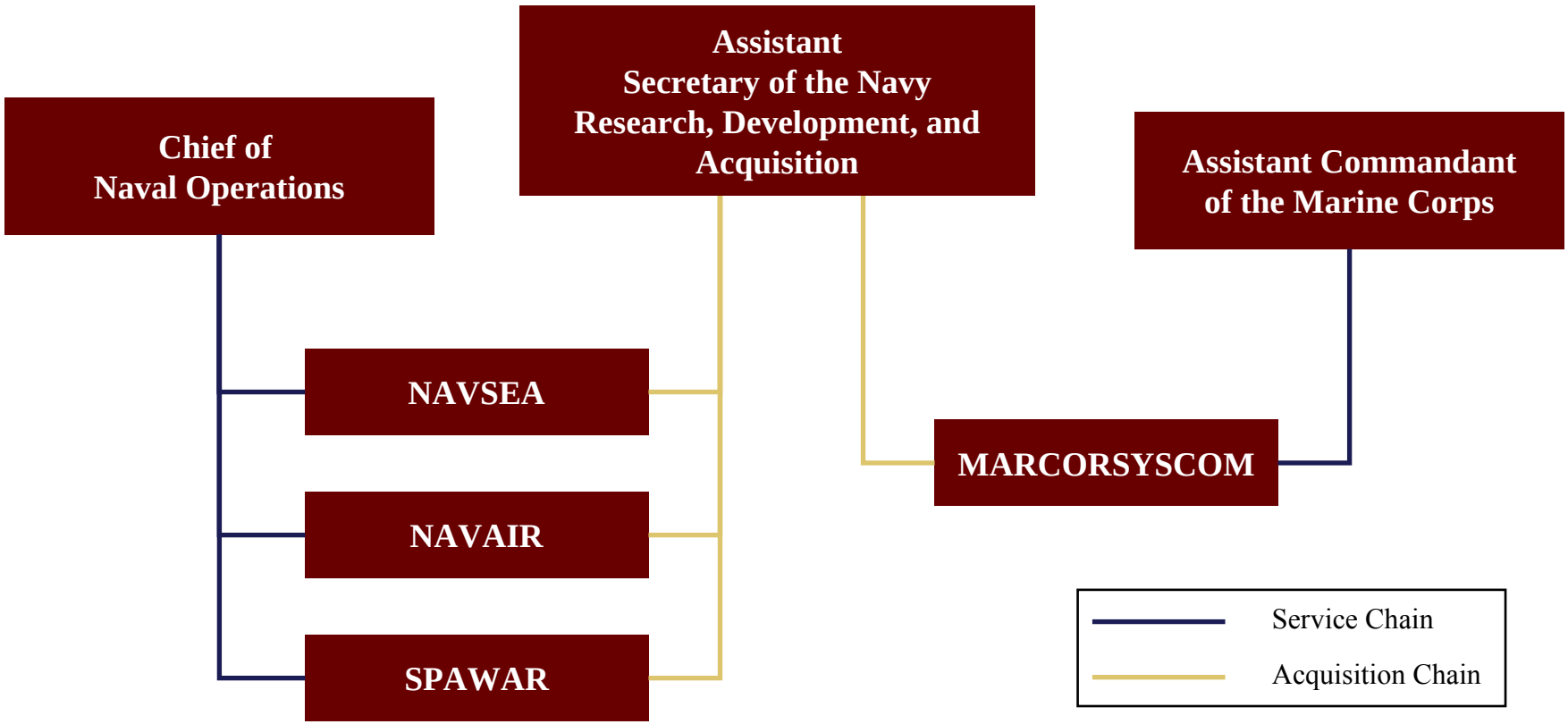


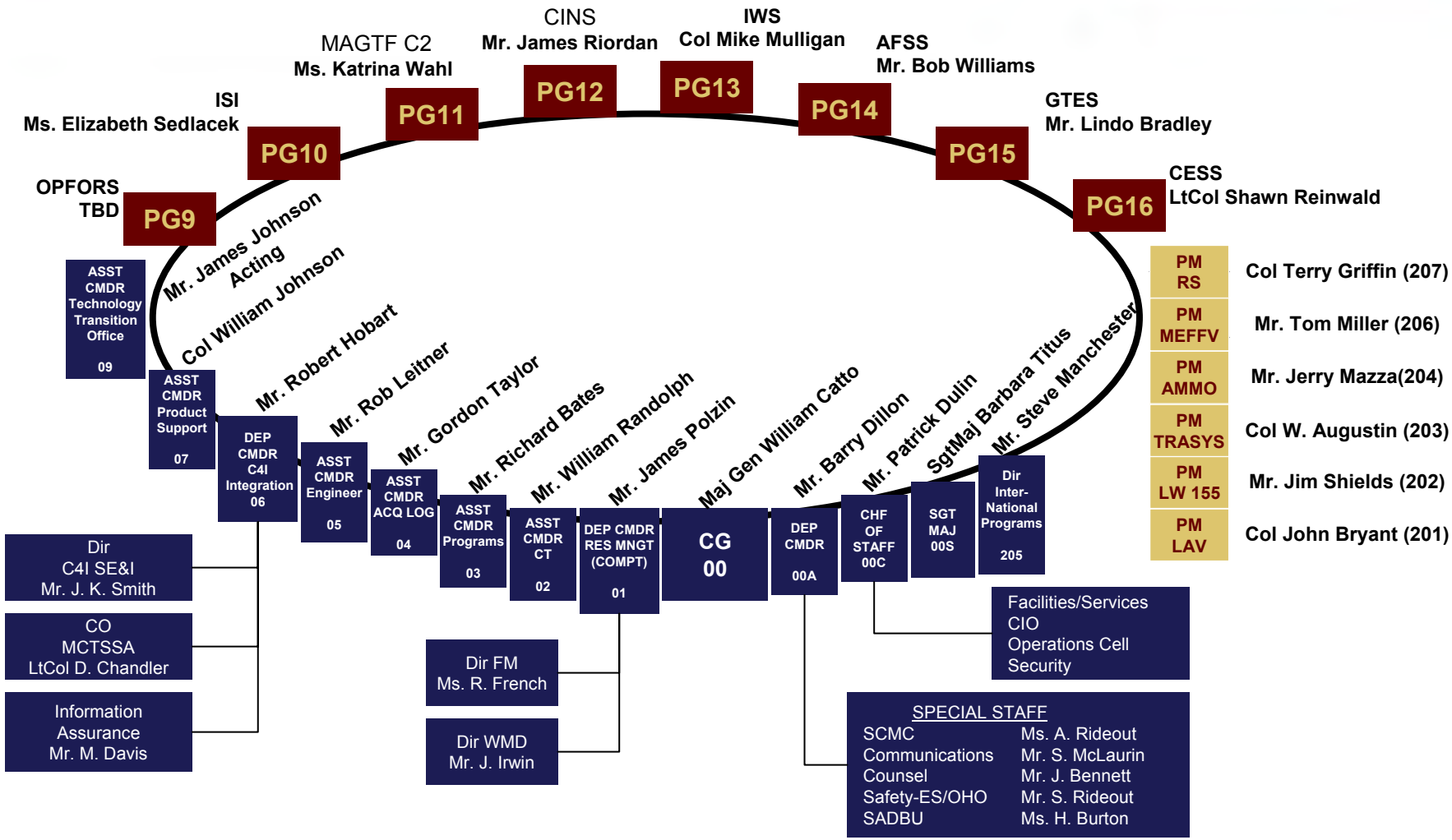
Military*



**Also, 1 General*

Organizational Relationships




MAGTF C2
Ms. Katrina Wahl
CINS
Mr. James Riordan
IWS
Col Mike Mulligan
AFSS
Mr. Bob Williams
ISI
Ms. Elizabeth Sedlacek
GTES
Mr. Lindo Bradley
OPFORS
TBD
CESS
LtCol Shawn Reinwald
PG9
PG10
PG11
PG12
PG13
PG14
PG15
PG16
Mr. James Johnson
Acting
Col William Johnson
Mr. Robert Hobart
Mr. Rob Leitner
Mr. Gordon Taylor
Mr. Richard Bates
Mr. William Randolph
Mr. James Polzin
Maj Gen William Catto
Mr. Barry Dillon
Mr. Patrick Dulin
SgtMaj Barbara Titus
Mr. Steve Manchester
ASST CMDR Technology Transition Office 09
ASST CMDR Product Support 07
DEP CMDR C4I Integration 06
ASST CMDR Engineer 05
ASST CMDR ACQ LOG 04
ASST CMDR Programs 03
ASST CMDR CT 02
DEP CMDR RES MNGT (COMPT) 01
CG 00
DEP CMDR 00A
CHF OF STAFF 00C
SGT MAJ 00S
Dir Inter-National Programs 205
PM RS
Col Terry Griffin (207)
PM MEFFV
Mr. Tom Miller (206)
PM AMMO
Mr. Jerry Mazza(204)
PM TRASYS
Col W. Augustin (203)
PM LW 155
Mr. Jim Shields (202)
PM LAV
Col John Bryant (201)
Dir C4I SE&I Mr. J. K. Smith
CO MCTSSA LtCol D. Chandler
Information Assurance Mr. M. Davis
Dir FM Ms. R. French
Dir WMD Mr. J. Irwin
Facilities/Services
CIO
Operations Cell
Security
SPECIAL STAFF
SCMC Ms. A. Rideout
Communications Mr. S. McLaurin
Counsel Mr. J. Bennett
Safety-ES/OHO Mr. S. Rideout
SADBU Ms. H. Burton

PGs and Programs

Commander

Deputy Commander

PG 10 Information System & Infrastructure

- Enterprise Information Technology Services
- Global Combat Support Systems
- Logistics Information Systems
- Navy Marine Corps Intranet
- Strategic Applications Management
- Total Force Information Technology Systems

PG 11 MAGTF C2

- Air Defense Weapon Systems
- MAGTF C2 Systems
- Operations Facilities
- Radar Systems
- MC21 Coordination Team

PG 12 MAGTF CINS

- Communication Systems
- Intelligence Systems

PG 13 Infantry Weapons Systems

- Anti-Armor Systems
- Infantry Weapons
- Marine Expeditionary Rifle Squad
- Optics and Non-Lethal Systems
- Recon & Amphibious Raids

PG 14 Armor & Fire Support Systems

- Assault Amphibious Vehicle Systems
- Expeditionary Fire Support System/Internally Transportable Vehicle
- Fire Support Systems
- High Mobility Artillery Rocket System
- Tank Systems

PG 15 Ground Transportation/ Engineering Equipment

- Engineer Systems
- Expeditionary Power Systems
- Motor Transport

PG 16 Combat Equipment & Support Systems

- Infantry Combat Equipment
- NBC Defense Systems
- Test, Measurement & Diagnostic Equipment

MARCORSYSCOM Programs*

Category	ACAT I R&D>$265M PMC>$1.29B	ACAT II R&D>$140M PMC>$660M	ACAT III	ACAT IV
USMC Programs	GCSS-MC	MTVR CAC2S G/ATOR	35 PROGRAMS	85 PROGRAMS
Joint Programs	DTS (DFAS) GCCS (DISA) TBMCS (USAF) GBS (USAF) PLGR (USAF) TC-AIMS II (USA) SMART-T (USA) SINCGARS (USA) AFATDS (USA) JTRS (USA) JAVELIN (USA) PMS (USA) DIMHRS (USN)	LW-155 (USMC) M-88A2 (USA) JPBDS (USA)	USA Led x 29 USAF Led x 2 USN Led x 5 DISA Led x 1 JPEO x 9	30 PROGRAMS
Number of Programs	14	6	81	115

Other
Pre-Milestone B Efforts
Fielded Systems
AAPs
Ammunition Items
Miscellaneous Projects
409

***As of 01 Aug 2005**

Urgent Universal Needs Statements

How the Marine Corps Systems Command has Provided Material Solutions in Response to Urgent Needs from the Warfighter to Enhance Ability to Conduct Combat Operations

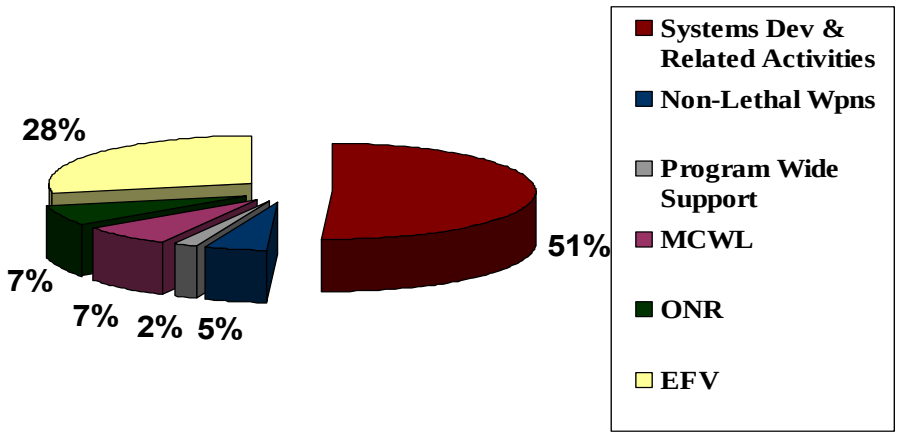
UUNS Background

- CG MCCDC owns the process
  - Governed via series of MARADMINs
- The MROC controls the process
  - MROC Decision Memorandums
- Three Full Years of Responsive Acquisition
  - Avg less than 90 days from funding until initial fielding
  - ~ 50 to 75 UUNS per year (mostly COTS)
  - $150M to $200M BTR required per year
  - Majority for Force Protection and C2

Status of UUNS Process

- Multiple sources of urgent needs
  - I MEF, II MEF, OEF, HOA
- Staffing challenges:
  - Lack of single, prioritized view
- Developing a BACKLOG of Urgent Needs
  - Pending UUNS exceed $500M
  - Obtaining external funding for theater requirements is a major challenge
- Trend is less COTS and more Developmental

FY05 RDT&E Dollars



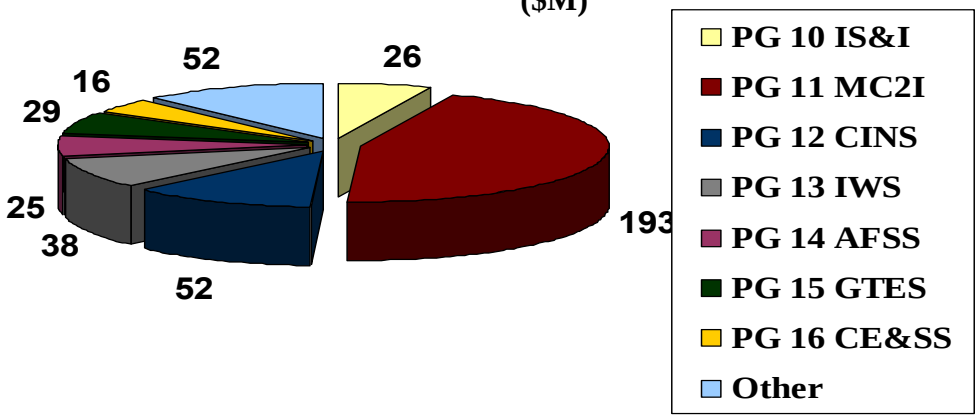
Total Appropriation: $849M

- **Systems Development: 51%**
- **EFV (AAAV): 28%**
- **S&T (ONR, MCWL): 14%**
- **NLW: 5%**
- **Other: 2%**

49%

RDT&E Systems Development Dollars

RDT&E, Systems Development & Related Activities ($M)

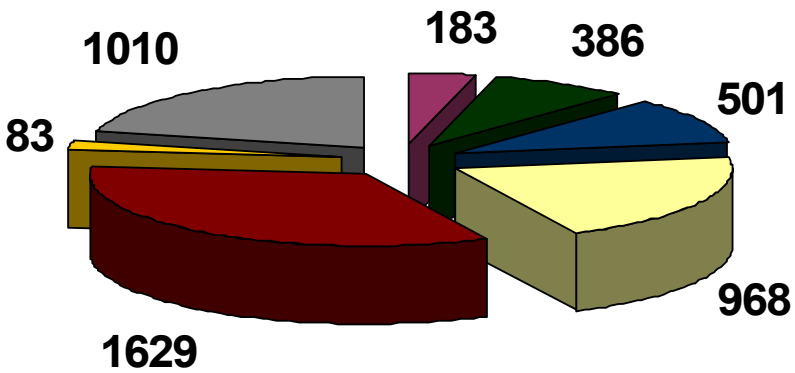


Total Systems Dev: $431M

- **IS & I – 6.0%**
- **MC2 – 44.6%**
- **CINS – 12.1%**
- **IWS – 8.9%**
- **AFSS – 5.7%**
- **GTES – 6.9%**
- **CE&SS – 3.8%**
- **Other – 12.0%**

FY05 PMC Dollars

($M)

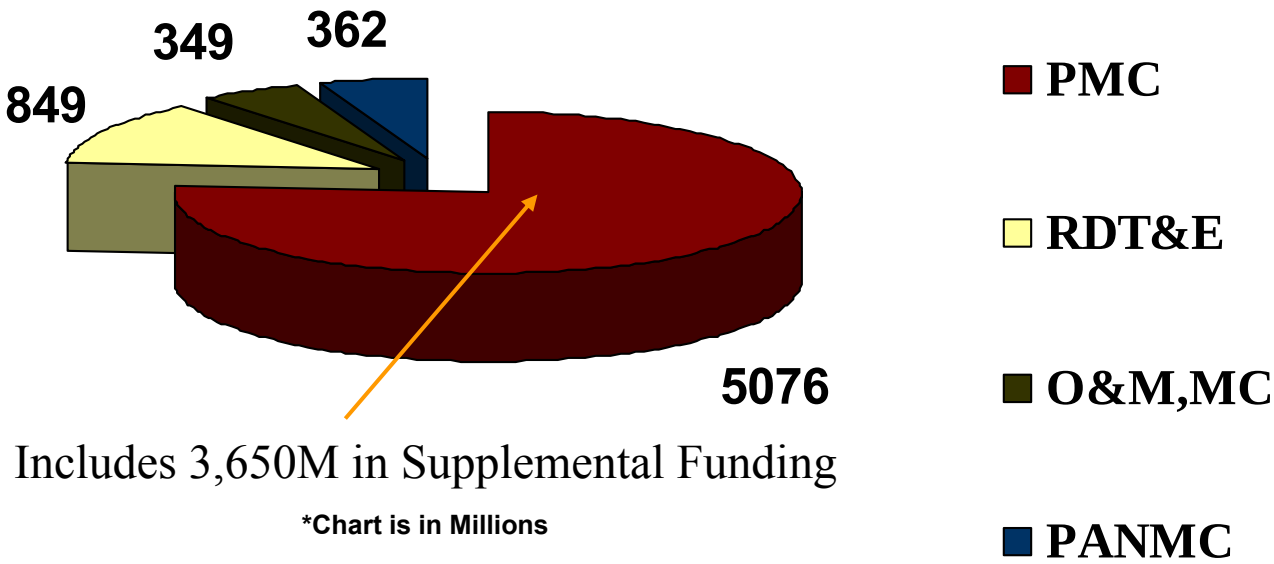


Total PMC: $5,076M

- **IS & I – 3.6%**
- **MC2I – 7.6%**
- **CINS – 9.9%**
- **IWS – 19.1%**
- **AFSS – 6.2%**
- **GTES – 32.1%**
- **CE&SS – 1.6%**
- **Other* – 19.9%**

* Includes LAV & LW155

FY05 Appropriations*



Includes 3,650M in Supplemental Funding

*Chart is in Millions

Total FY05 $6.64B

FY05 Supplemental Cost Estimate Methodology

Step 1: Define GWOT Equipment Inventory

OIF EDL
+ OEF EDL
+ UUNS
+ FSRG
+ FMTU
= Over 2300 TAMCNs

Step 2: ID Individual TAMCN Unit Replacement Cost

Step 3: Unit Cost X Qty of TAMCN = Cost Per TAMCN

Step 4: Sum “Cost Per TAMCN” = Total Ground Reset Cost

Marine Corps Systems Command Contact Information

- Phone 703-432-3964
- Email mcscpao@marcorsyscom.usmc.mil
- Web Site www.marcorsyscom.usmc.mil

Brochures and information packages in the lobby.



10th Annual NDIA Expeditionary Warfare Conference

Major Gen Gordon Nash

Director, Expeditionary Warfare Division (N75)

The Director for Expeditionary Warfare *"shall supervise the performance of all staff responsibilities of the Chief of Naval Operations regarding expeditionary warfare, including responsibilities regarding amphibious lift, mine warfare, naval fire support, and other missions essential to supporting expeditionary warfare."*

National Defense Authorization Act for Fiscal Year 1993
Title 10, U.S. Code 5038

Expeditionary Warfare Branches



MINE WARFARE



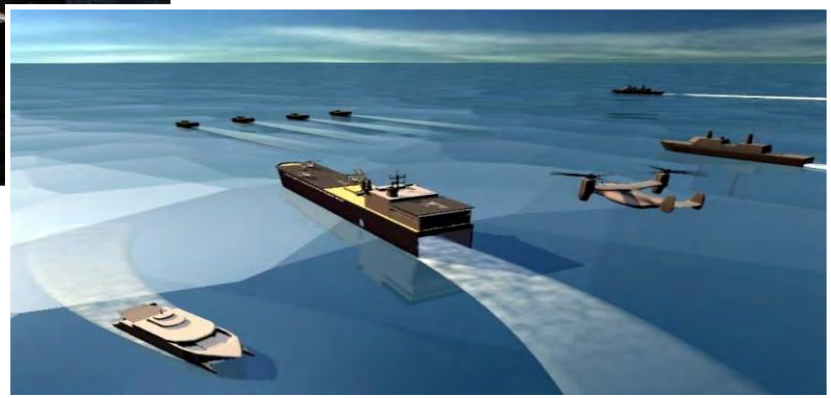
NAVAL COASTAL WARFARE



EXPLOSIVE ORDNANCE DISPOSAL



AMPHIBIOUS WARFARE

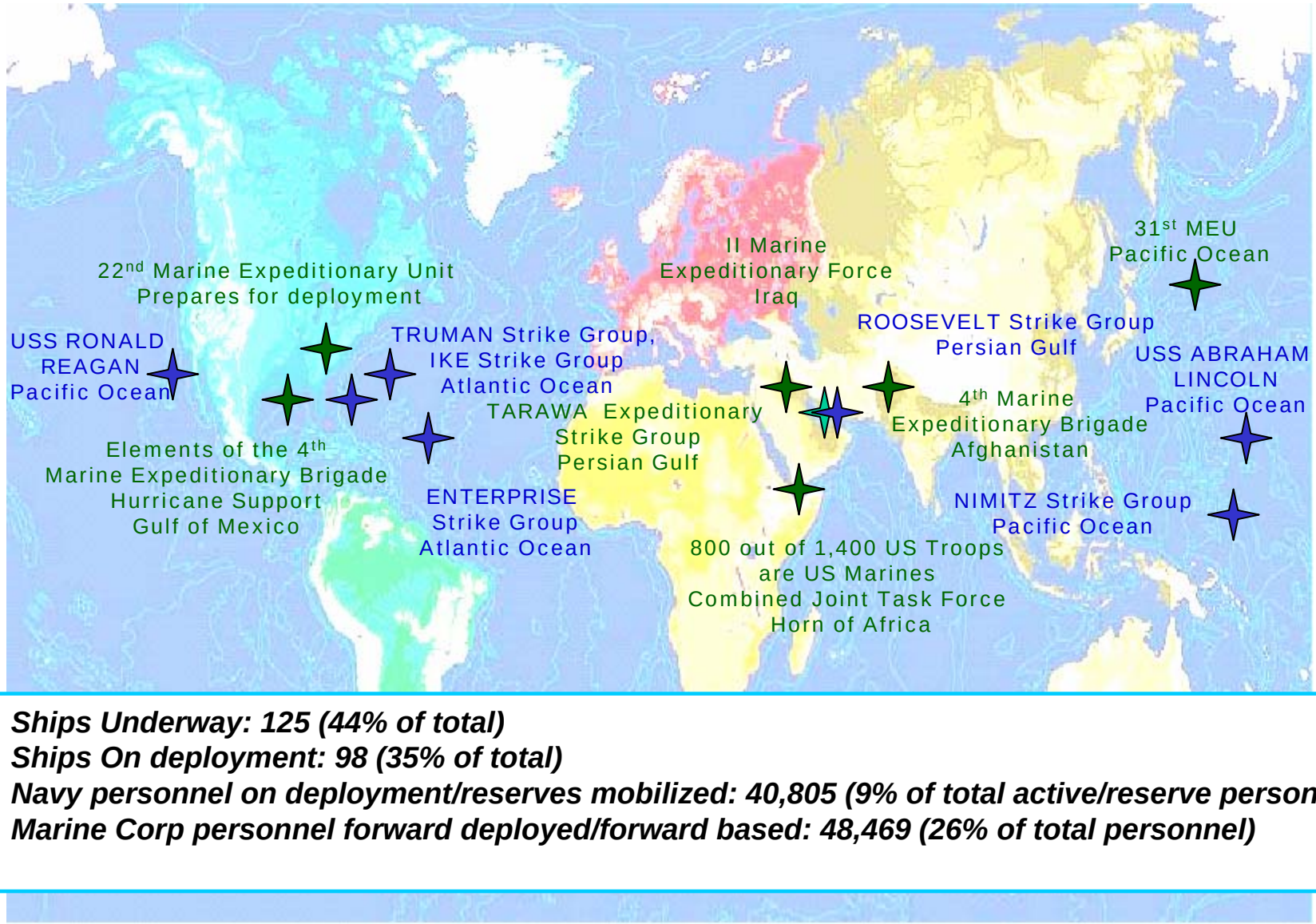


SEABASING



NAVAL SPECIAL WARFARE

US Navy / Expeditionary Warfare "Snapshot" (as of 10/24/05)



Ships Underway: 125 (44% of total)
Ships On deployment: 98 (35% of total)
Navy personnel on deployment/reserves mobilized: 40,805 (9% of total active/reserve personnel)
Marine Corp personnel forward deployed/forward based: 48,469 (26% of total personnel)

Scope of Expeditionary Warfare





Haiti – Philippines – East Timor – Eritrea – Somalia – Zaire – Liberia – Sierra Leone – Sri Lanka – Balkans – Afghanistan – Iraq – New Orleans

Expeditionary Warfare and the Global War on Terror





Operations Iraqi & Enduring Freedom
Naval Special Warfare



- 33% of all Naval Special Warfare forces are forward deployed
- 4:1 deployment rotation
- Until recently, SEAL Units were deployed or away from home fourteen out of an eighteen month work-up and deployment cycle.
- Actively deployed to all Combatant Commands













- 24% of EOD forces deployed in support of CENTCOM. 53% otherwise committed to GWOT

  - 3:1 Deployment Ratio

- 17% Naval Coastal Warfare forces continuously deployed to CENTCOM since 9/11.

  - 6:1 Deployment Ratio

- Mobile Diving and Salvage Unit conducted expeditionary salvage operations in 5th Fleet AOR

- Technology solutions to the IED and maritime threat being developed by NAVSEA (PMS EOD and NAVEODTECHDIV)





An Enabling Force for GWOT



-75% of Big Deck Amphibs were deployed to South West Asian AOR in direct support of OEF/OIF

-71% of Amphibious Warfare ships were underway during OEF/OIF

-Persistent forward presence of 3 ESG's at all times gives combatant commanders unrivaled operational flexibility.

-OIF: Amphibious Task Force East/West was 14 amphibs, carrying over 1,300 vehicles, 16,000 troops and 220 aircraft to the fight





Hurricane Katrina Rescue and Relief





17 Expeditionary Warfare Ships on station
Over 50 aircraft utilized in support operations

3 Mine Counter Measures (MCM) and 1 Mine Hunter, Coastal (MHC) ships cleared 250 nautical miles of waterways and over 40 oil platforms

Mobile Diving and Salvage Unit (MDSU) 2, Naval Special Clearance Team (NSCT) 1 and USS GRAPPLE cleared 165 miles of waterway and 95% of ports from Pensacola to Pearl, MS for safe navigation.





I ran into VADM Thad Allen… the senior federal officer on scene, running the whole show. He said, "Mike, you should consider renaming this ship The City of New Orleans." That says it all.
From CNO Mullen email of 9/12/05



Katrina & USS San Antonio (LPD 17)

"Never retreat… Never Surrender."
USS San Antonio, Ship's Motto



"It's a tough ship. It's a tribute to those who designed and built her."
CAPT Jonathan Padfield, CO USS San Antonio

- **Crew augmented the Jackson County Emergency Response Center.**
- **Performed rapid post storm distribution of ice, water, and meals ready to eat (MREs) to hurricane victims.**
- **Provided logistics support for the National Guard.**
- **Served over 4,000 non-crew meals.**
- **Provided shelter for over 500 people.**
- **At any given time, the San Antonio provided refuge for about 150 people.**
- **Billeted Northrop Grumman employees, National Guard troops, Navy divers and civilians.**

Why Seabasing?

- ***Project joint power more rapidly* to confront unexpected threats, in the face of *decreasing access* and *basing* in order to:**
  - ***React promptly to theater needs***
  - ***Posture to minimize footprint***
  - ***Emphasize the ability to surge quickly***

… with agile and expeditionary forces

Reference: DoD Congressional Testimony, 2005; SECDEF Donald Rumsfeld;FY06 DoD Budget Senate Armed Services Committee; 17 FEB 2005.

The Military Challenge: Access

Access to Land Bases restricted…



… for political reasons

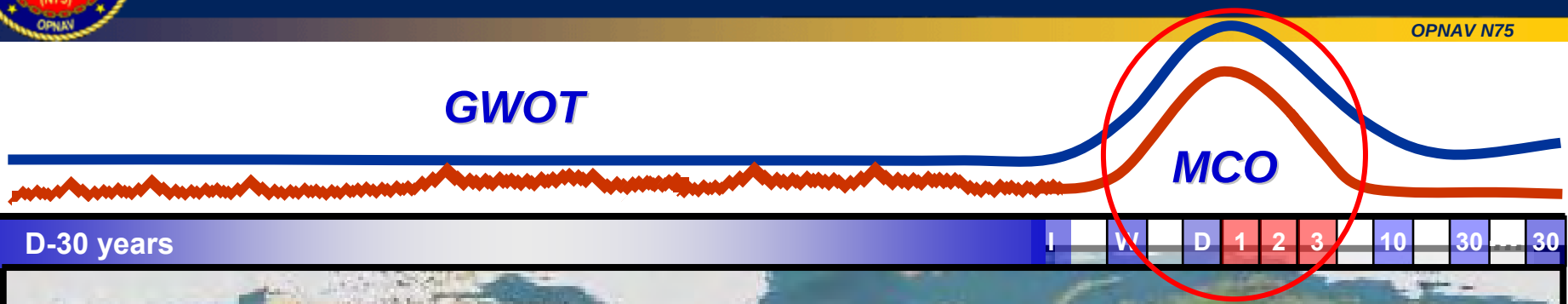
… due to current and future regional powers ability and willingness to use inexpensive, asymmetric weapons that are readily available to threaten coalition ability to gain access to littoral regions to project power ashore

Since 1945, the U.S. has had access to over 170 bases overseas.

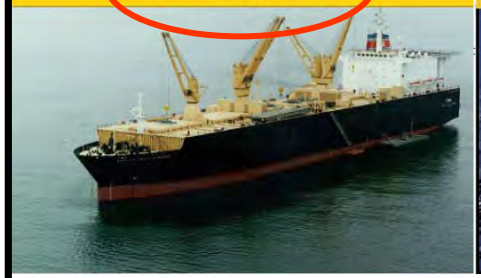
Today, that number is 26 and continues to grow smaller

Joint and coalition forces must be assured access… anytime, anyplace

Seizing the Initiative



MPSRON



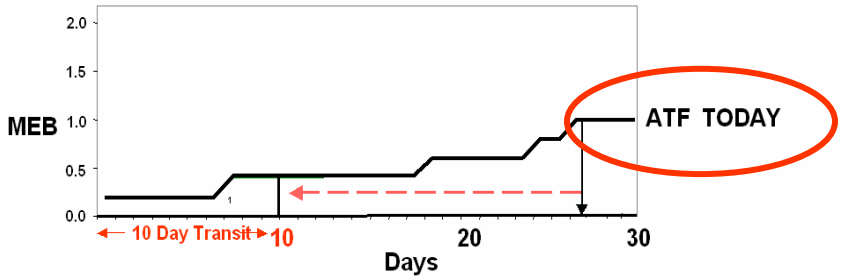
"Iron mountain ashore"



Employment
- Secure inport offload

Force arrival
- Marry up with troops ashore

Capacity
- Densely Packed



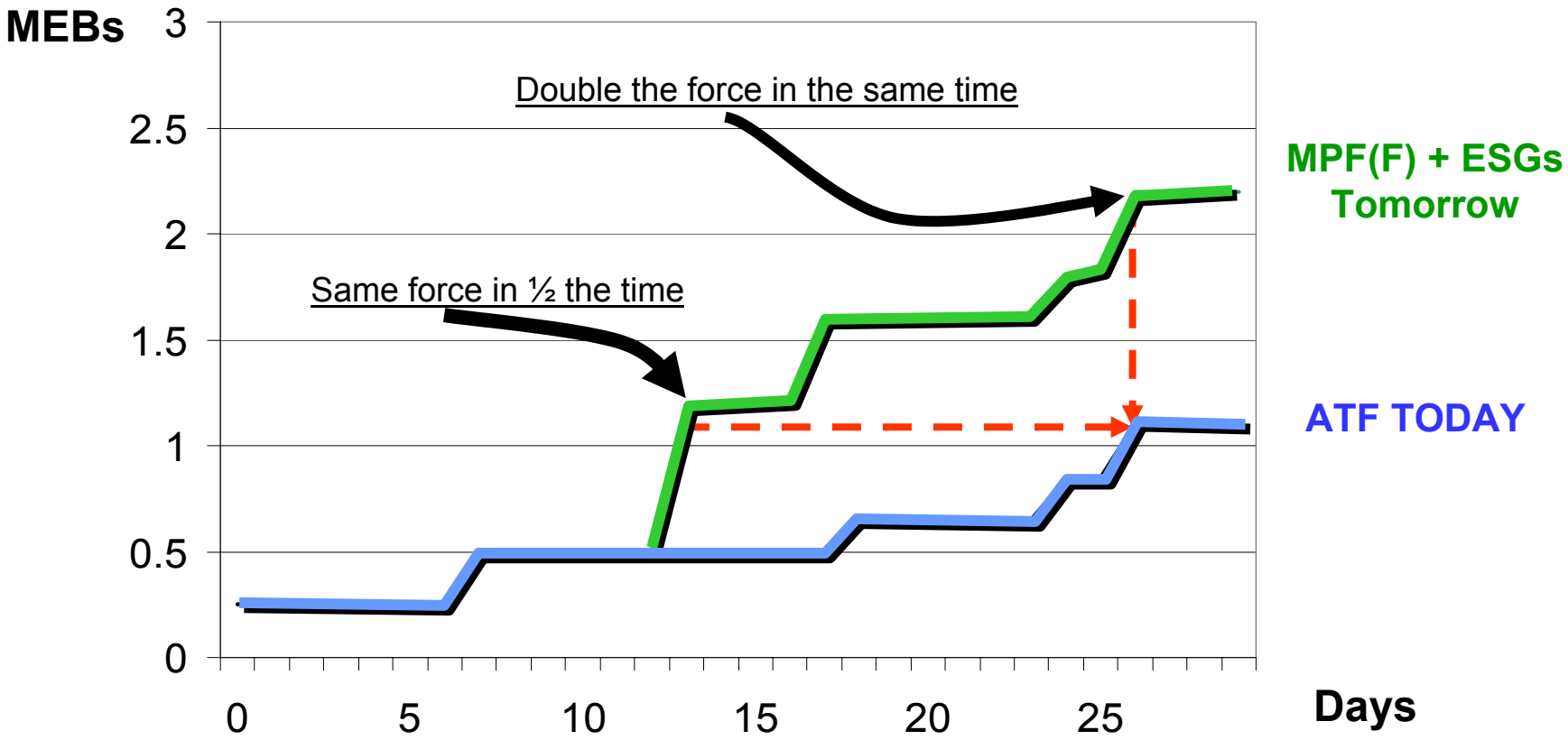
Closure/Employment
- Time for build up...weeks/month+

Effectiveness
- Centralized, limited... stove-piped forces

Strike & C2
- Naval strike ...and C2

28 Days from Norfolk to the Arabian Gulf
47 Days from San Diego to the Arabian Gulf

Accelerate Access...Rapid Deployable Surge



The Goal: Forcible Entry Capability in days/weeks, by Leveraging Deployed and Self-deploying Assets

Source: Joint Staff JFEO Study, 2003

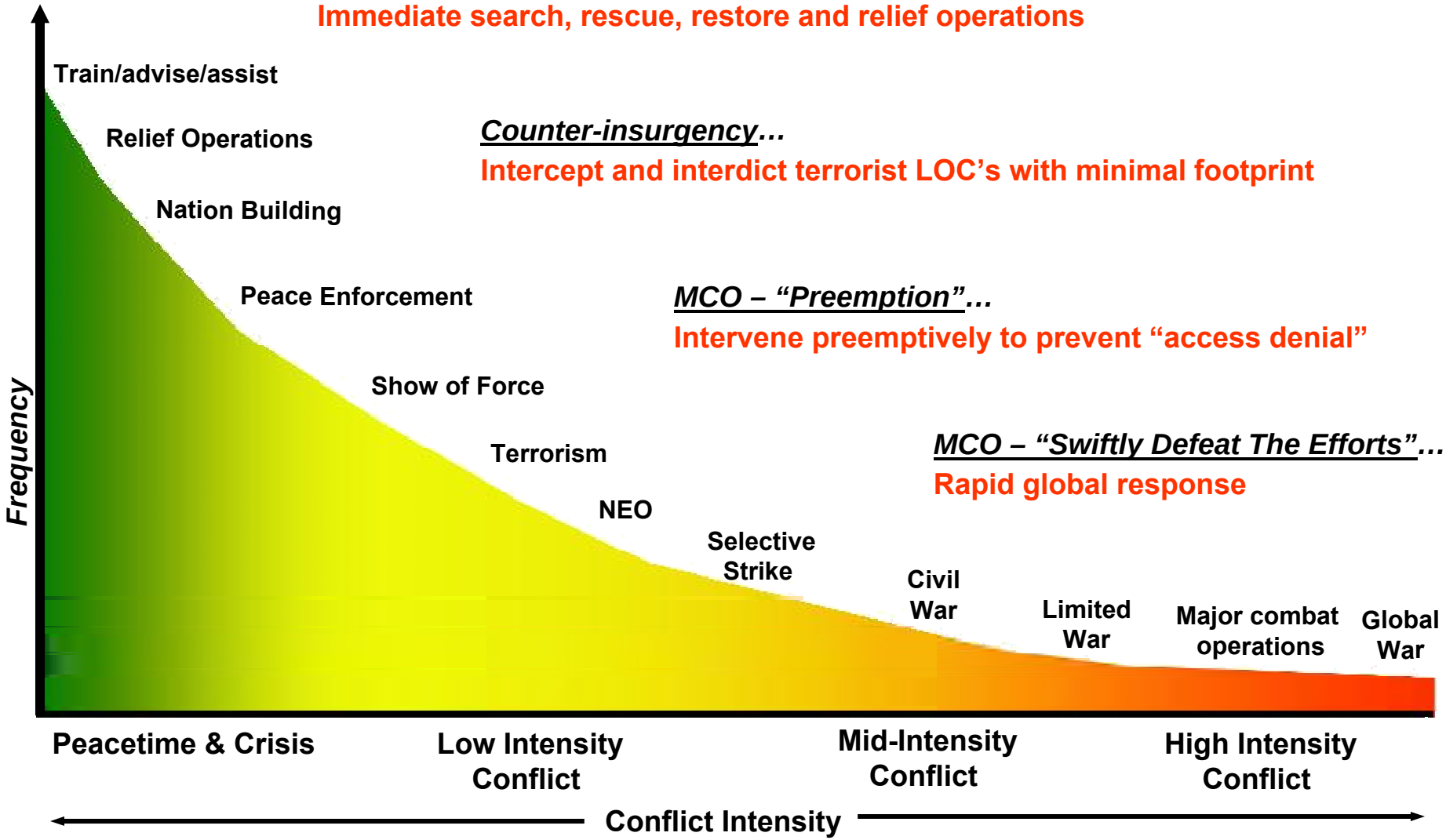
Scaling the Sea Base

***Humanitarian Assistance*…**
Immediate search, rescue, restore and relief operations

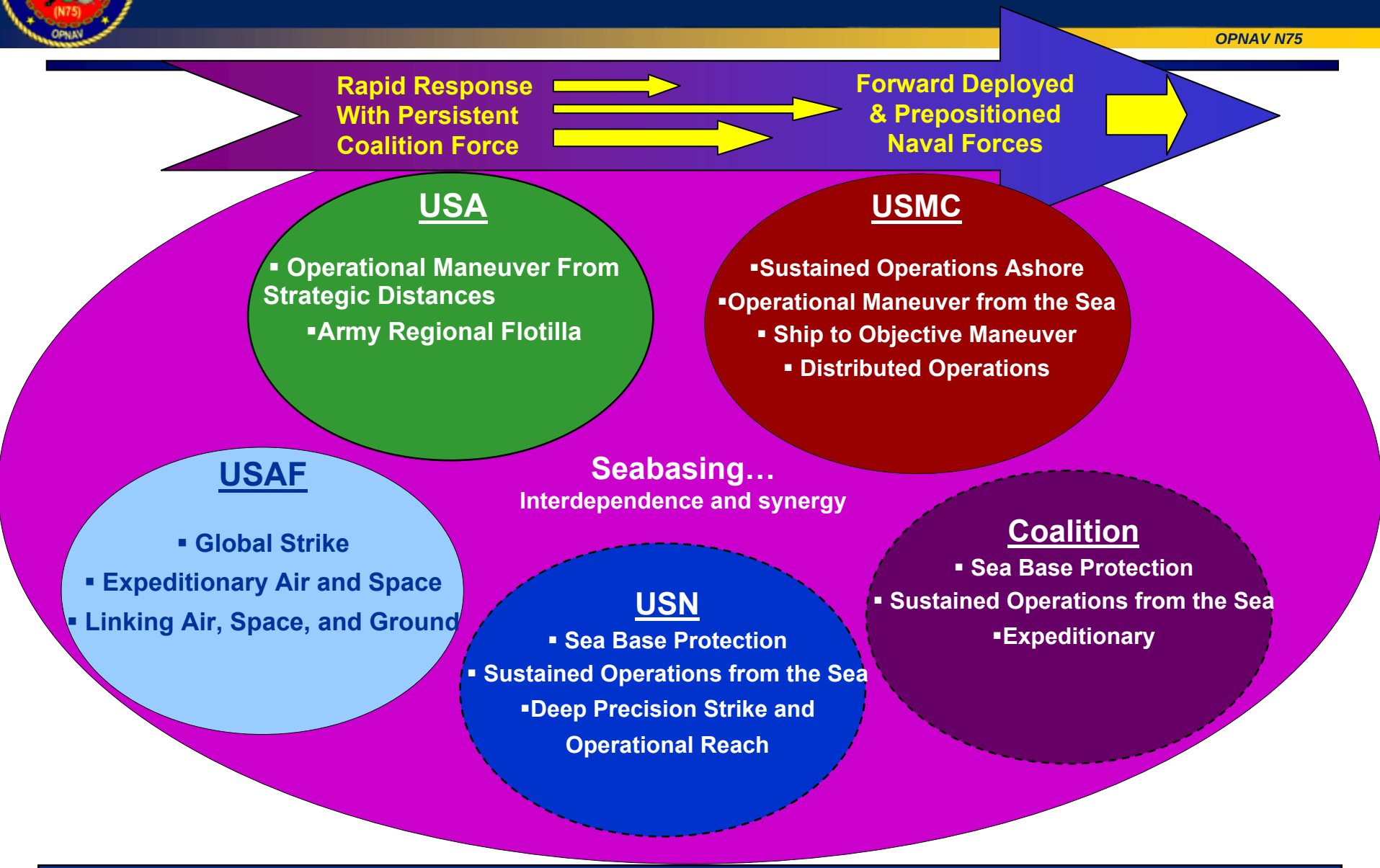
***Counter-insurgency*…**
Intercept and interdict terrorist LOC's with minimal footprint

***MCO – "Preemption"*…**
Intervene preemptively to prevent "access denial"

***MCO – "Swiftly Defeat The Efforts"*…**
Rapid global response



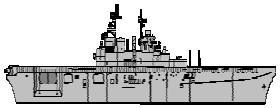
Power of Complementary Global CONOPS



Combined Force Response . . . enabled by Seabasing

MPF(F) Squadron Composition

LHA(R) w/MEB C2



- *Lightship Displacement: 30,862 MT*
- *Landing Spots: 9/ship*
- *Ship Speed: 22kts*

2

LHD w Aviation C2



- *Lightship Displacement: 28,540 MT*
- *Landing Spots: 9/ship*
- *Ship Speed: 22kts*

1

LMSR (Large Medium Speed RoRo)



- *Lightship Displacement: 36,289 MT*
- *Landing Spots: 2/ship*
- *Ship Speed 24 kts*

3

T-AKE (Dry Cargo Carrier)



- *Lightship Displacement: 25,700 MT*
- *Landing Spots: 2/ship*
- *Ship Speed 20 kts*

3

Legacy Dense Pack



- *Lightship Displacement: 19,900 MT*
- *Landing Spots: 1/ship*
- *Ship Speed 18 kts*

2

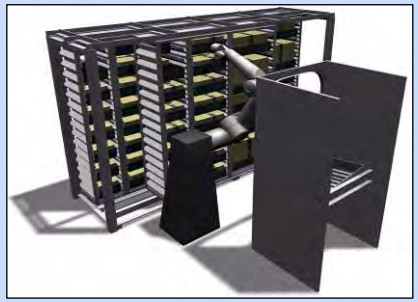
MLP(w/Troops)



- *Light Ship Displacement: 28,423 MT*
- *Landing Spots: VERTREP*
- *Ship Speed 20kts*

3

- **Squadron is 14 ships**
- **6 hulls: 2 hot production lines, 1 new design**
- **Full MEB (1 vertical battalion and 2 surface battalions) are selectively offloadable**
  - **Personnel for second surface battalion are on Sea Base**
- **11 of 14 ships built to commercial survivability standards (minor enhancements), 3 ships to military survivability standards**
- **MLP required for surface interface**
- **Meets delivery timeline for vertical and surface battalions**
- **Significant Industrial Base stability**





Expeditionary Warfare Science and Technology





Quick Reaction



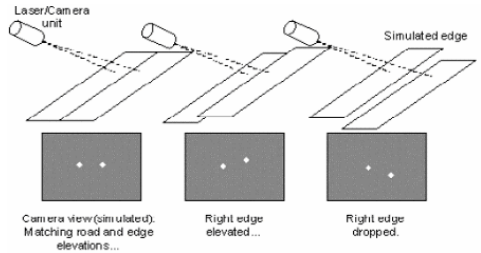
CRISSTL Ball

Compact, Remote Imaging Surveillance System with Two-pi+ OutLook

Naval Special Warfare



Hostile Fire Detection & Localization



Trail Edge Warning

Rapid Technology Transition

Explosive Ordnance Disposal / Naval Coastal Warfare





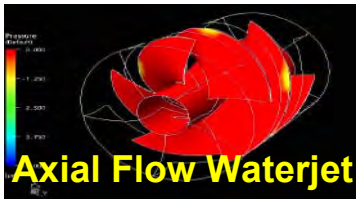
WETBOT Remote Hull Search Vehicle



BomBot Remote EOD Vehicle

Future Naval Capabilities

CLOSE





Compact / Agile



Material Mover



ASSEMBLE

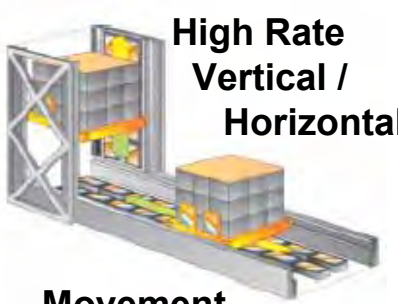








EMPLOY



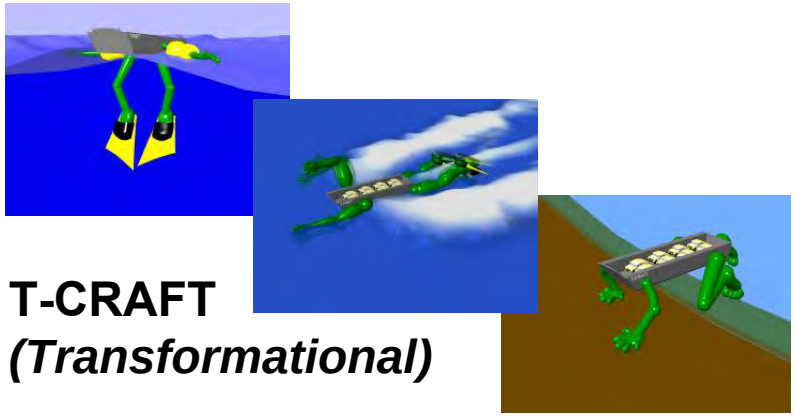




SUSTAIN

RECONSTITUTE

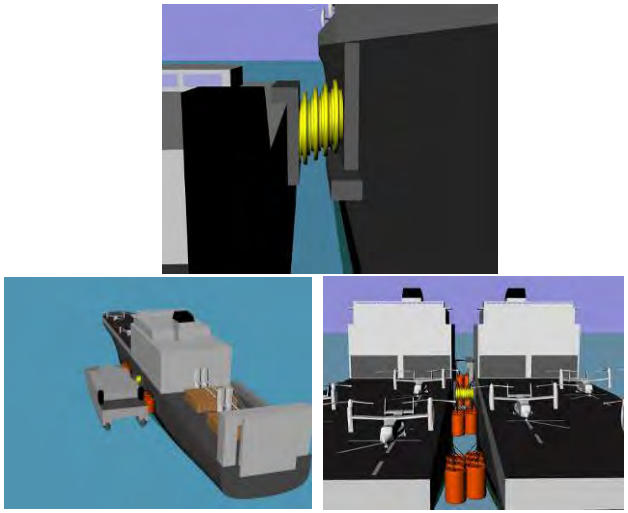
Innovative Naval Prototypes



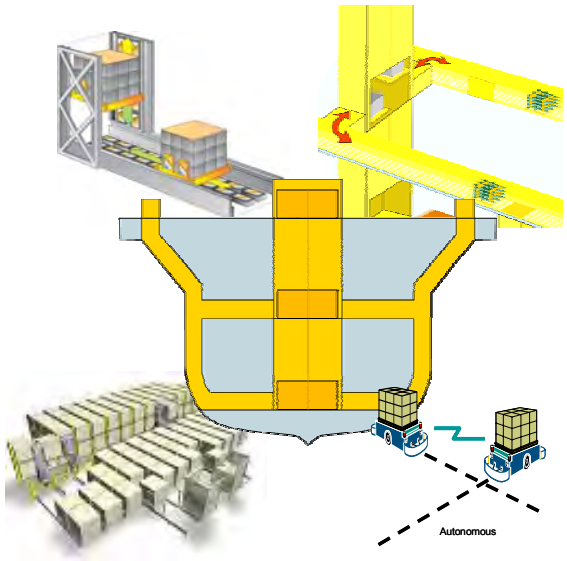
T-CRAFT
(Transformational)



Sea Base
Intermediate Transfer Station



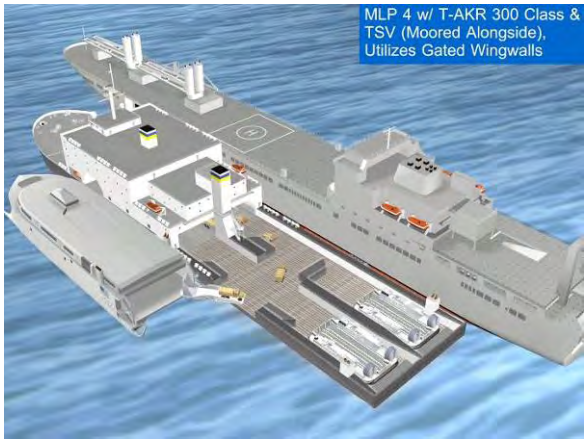
Personnel Transfer At-Sea



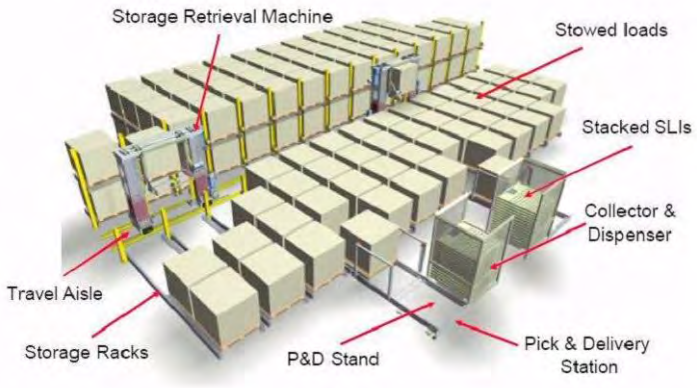


TransPORTS

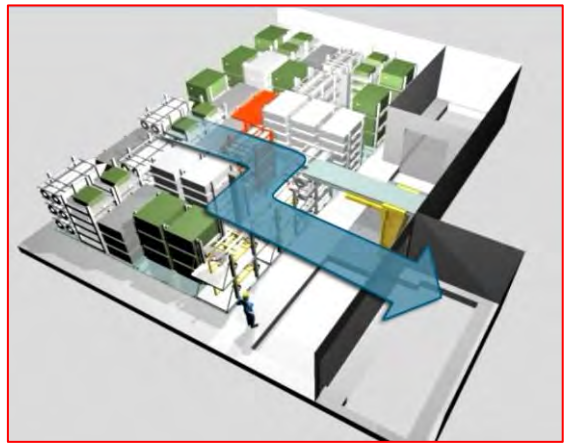
Key Seabasing Technologies



Mobile Landing Platform



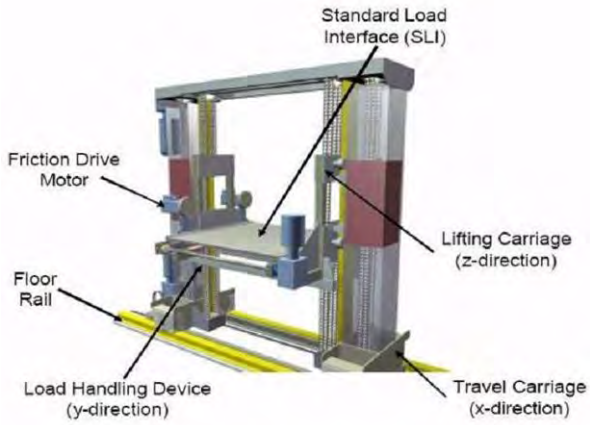
Automated Cargo Handling



Selective Offload



Heavy Underway Replenishment



Selective Retrieval Machine



Skin-to-Skin Cargo Transfer

The Future of Expeditionary Warfare

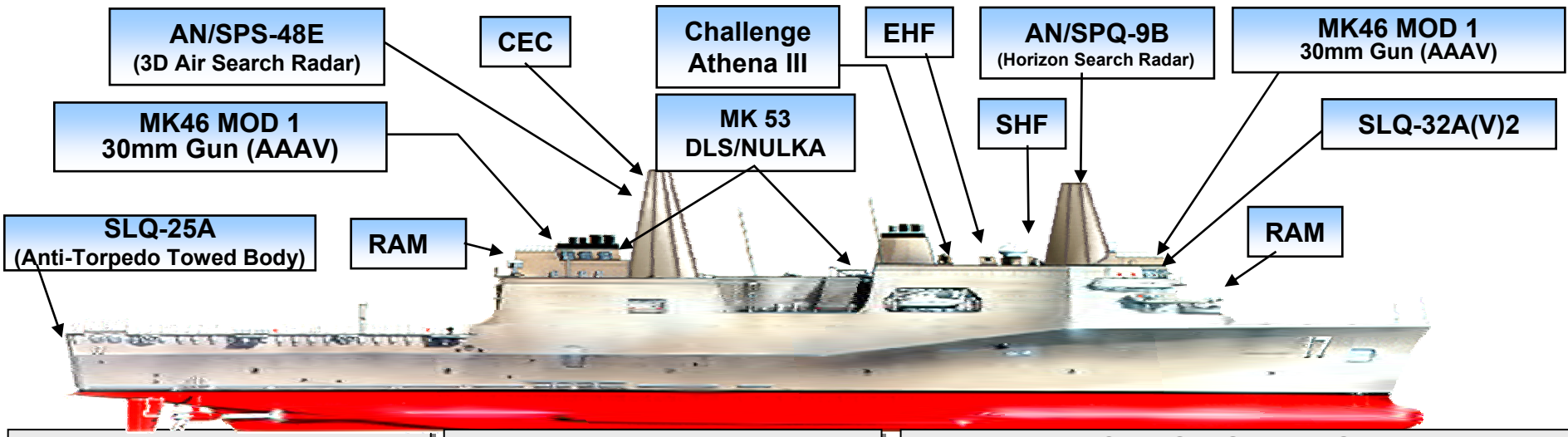








LPD 17 Capabilities



SURVIVABILITY

- Radar Cross Section Reduction
- Magnetic Signature Reduction
- Shock Hardening
- Blast Hardened Bulkheads
- Fragmentation Protection
- Collective Protection System
- Smoke Ejection System
- Fire Insulation

COMBAT SYSTEMS

SPS-48E
SPQ-9
SPS-73
SLQ-32(V)2
SSDS
CEC
GCCS-M
RAM
SRBOC
NULKA
30 mm MK 46 MOD 1 Gun (2)

DETECT

CONTROL

ENGAGE

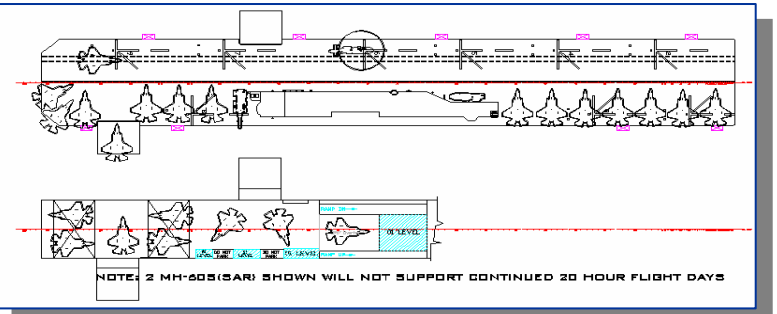
C4I SYSTEMS

SWAN (SIPR/NIPR)*
NAVMACS
ADNS
MAGTF ROUTER*
VTC Capability*
T-RDF ANTENNAS*
BF E-Mail*
COWAN*
EPLRS-DR*
GCCS-M
EHF
SHF (Dual Channel Capability)
DMR (UHF SATCOM/ All UHF & VHF)
CDLMS (Link 11/16)
NAVSSI
NTCSS
KSQ-1
DWTS

SPACE, WEIGHT AND SERVICES

SSES
NALCOMIS
AFATDS
DTAMS

LHA(R) FLT 0 / LHA-6
Variation of the LHD Class



- 4 Additional JSF
- Increased JP5 capacity
- 100% Maintenance capability
  - Aviation shops
  - 2 high hats for MV-22
- Increased Stability

ELECTRONICALLYRECONFIGURABLE COMMAND AND CONTROL COMPLEX

HANGAR DECK EXTENDED FORWARD AND AFT 42% GROWTH

MEDICAL RESIZED

HANGAR HIGH HAT ENLARGED AND ONE ADDED FOR AIRCRAFT MAINTENANCE

HANGAR

VEHICLE STOWAGE

MAG MAG MMR AMR MMR MAG MAG MAG MAG

STERN GATE & MCHRY DELETED

WELL DECK SUBDIVIDED

AMR WITH A/C PLANT

LOWER VEHICLE SUBDIVIDED

MAGAZINE PROTECTION

LONGITUDINAL STRENGTH MODS

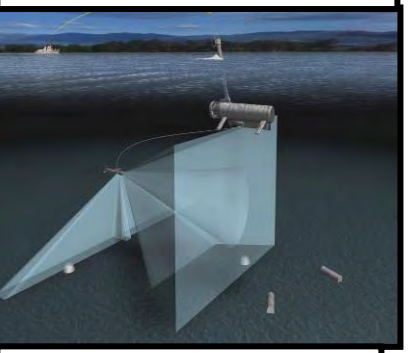
ADDITIONAL JP 5 TANKS (BALLAST TANK CONVERSION) 600K-→ 1.3m GAL



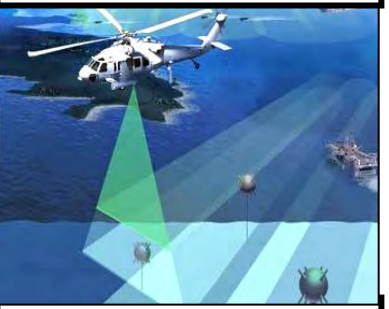
- Same C4I Suite as LHD 8
- Same propulsion as LHD 8

Littoral Combat Ship (LCS)
Flight 0 & Mine Countermeasures Mission Package

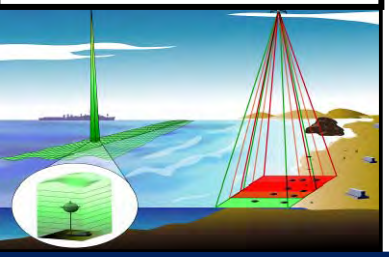
Remote Mine Hunting System & AN/AQS20A



Airborne Laser Mine Detection System



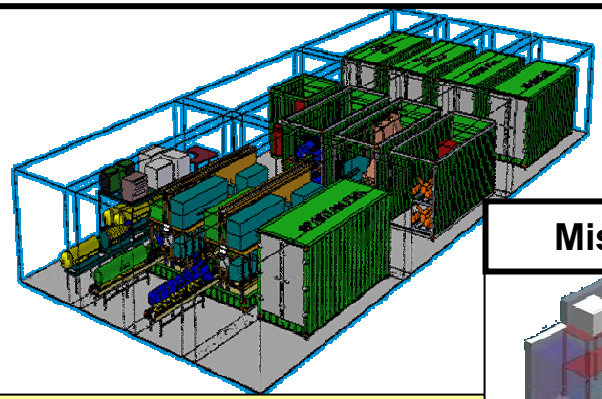
Coastal Battlefield Reconnaissance & Analysis System



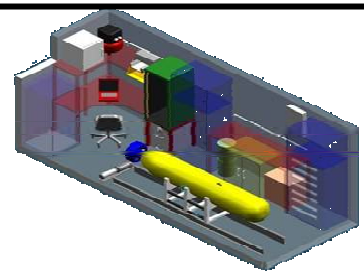




Mission Package

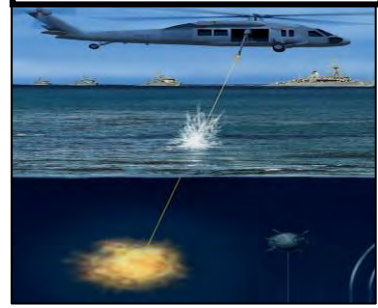


Mission Module

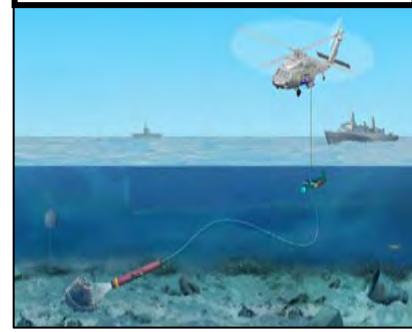


Full Mine Warfare Package: FY10

Rapid Airborne Mine Clearance System



Airborne Mine Neutralization System



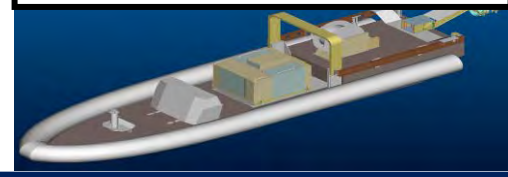
SCULPIN Unmanned Underwater Vehicle



Battlespace Preparation Autonomous Underwater Vehicle



Unmanned Surface Vehicle & Organic Airborne and Surface Influence Sweep



Surface Connectors

Well Deck to Shore





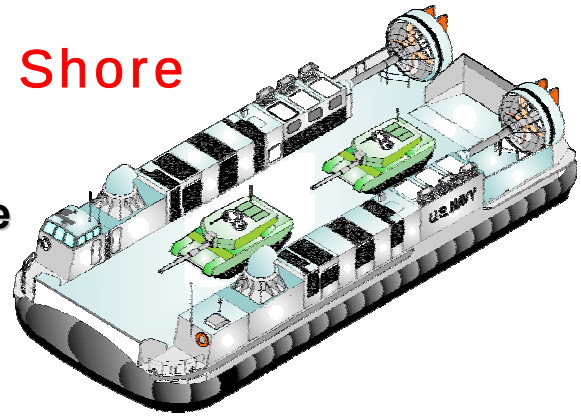
LCU-1600



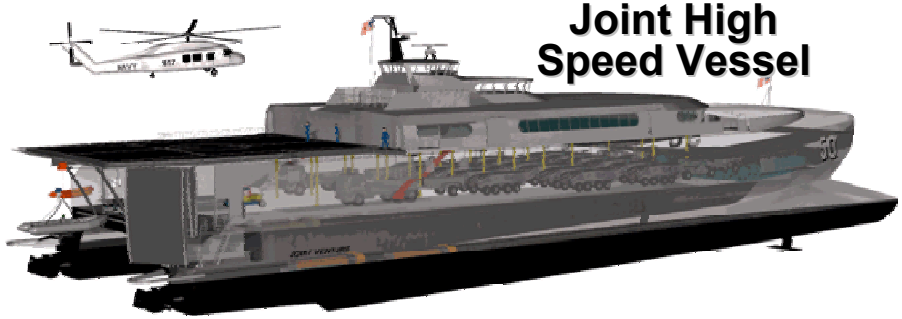
LCAC Service Life Extension Program

Well Deck to Shore and Sea Base to Shore

Seabase-to-Shore Connector



Joint High Speed Vessel



Intra-theater Connector – High speed surface lift within the Sea Base & Sea Base to austere port

Air Connectors

Legacy



CH-46E
&
CH-53E

Future

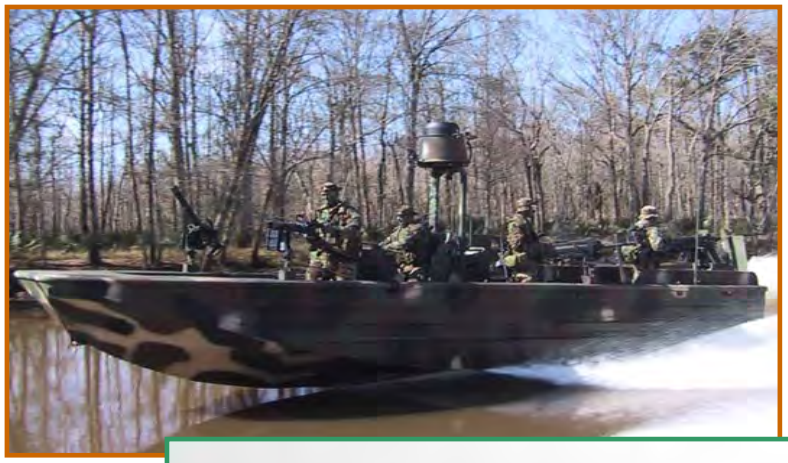
Joint
Heavy
Lift







Navy Riverine Force





Navy Riverine Force

- Commander, Fleet Forces Command (CFFC)
  - Active Component Squadron (3)
    - FY05/06
  - Reserve Component Squadron (2)
    - FY07/08
- 36 armed/armored Combatant Craft
  - Three 12-craft squadrons
  - Two crews per craft for 24/7 operations
  - Total lift equivalent 1 USMC Rifle Co.

BACKGROUND

- Inability of Navy to satisfy USCENTCOM RFF 397
- Draft OSD PDM commits FY07 QDR lockbox
- GWOT Working Group
- Quadrennial Defense Review

PROJECTIONS

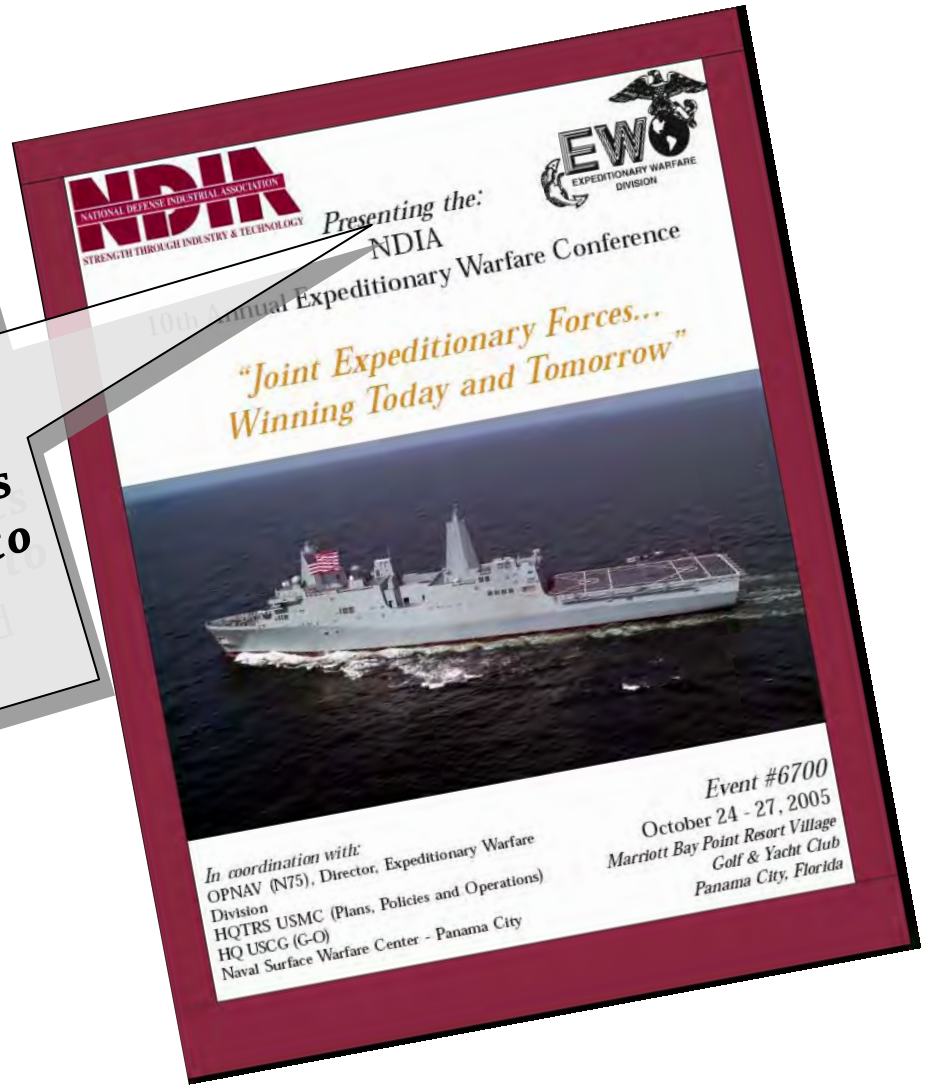
- Primary Missions:
  - River Patrol and Interdiction
  - Troop Movement

Summary

Where Industry can help…

OBJECTIVES

To provide an opportunity for the Services to ***provide clear statements of their requirements and intent to industry***, service laboratories, and other interested parties



Seabasing Through a Navy – Industry Partnership

Title	ONR BAA No.	Close Date
• High Capacity At-Sea Transfer of Materials, Personnel, and Equipment	04-005	16-Jan-04
•Sea Base Transformational Package and Ordnance Rapid Transfer System (TransPORTS) Prototype Demonstrator	05-018	4-Jun-08
• Sea Base Intermediate Transfer Station (ITS) Prototype Demonstrator	05-019	4-Jun-08
• Sea Base Connector Transformable-Craft (T-CRAFT) Prototype Demonstrator	05-020	4-Jun-08
• Personnel Transfer At-Sea Prototype Demonstrator	05-021	4-Jun-08
• Design and Fabrication of a High Performance Lift Fan System for the Landing Craft Air Cushion (LCAC)	RFP: N61331-06-R-0003	15-Nov-05
• High Rate Vertical / Horizontal Material Movement	SUSD0501	26-Oct-05
• Shipboard ISO Container Breakout & Repacking	SUSD0502	22-Nov-05

For more information, see: www.onr.navy.mil/02/baa **&** www.nsrp.org/seabasing

QUESTIONS?

Major General Gordon Nash

Director, Expeditionary Warfare Division (N75)

gordon.nash@Navy.mil

http://www.exwar.org



The Military Challenge: Speed

Maritime Preposition Squadron (MPS)
Marine Expeditionary Brigade (MEB) Timeline

EO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	...	30	...	43	44	45



- Administrative offload vice amphibious assault
- Full reliance on land bases
- Fails to provide the “seize the initiative” force

Amphibious Task Force (ATF) MEB Timeline

EO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	...	30	...	43	44	45

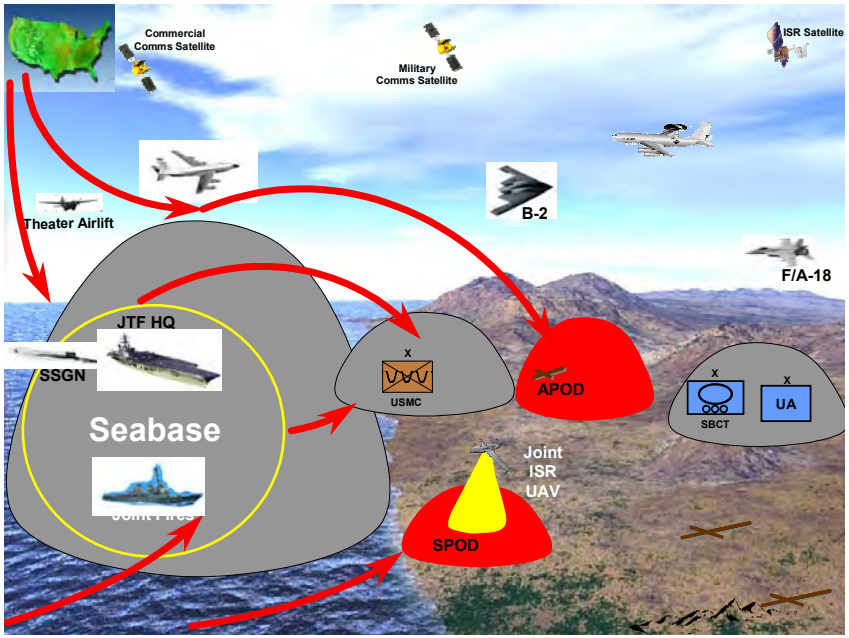


- Fails to provide the speed to “seize the initiative”

28 Days from Norfolk to the Arabian Gulf
47 Days from San Diego to the Arabian Gulf

Lines of Operation for Seabasing

Top Level Measures of Performance For Joint Forcible Entry Operations



Close W/in 10-14 days of execution order.

Assemble

Joint capabilities w/in 24-72 hours of arrival

Employ At least one JFEO brigade over-the-horizon AND within one period of darkness (8-10 hrs)

Sustain At least two joint brigades

Support selected joint maintenance

Provide level III medical

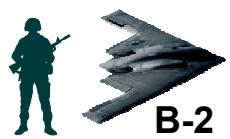
Reconstitute

Reemploy one JFEO brigade operating ashore within 10-14 days

Framing the range of capabilities

Attributes of Seabasing
...Measures of Effectiveness

Capacity	• the measure of how much joint force capability can be supported **…Troop, Aviation, Logistics**
Rate	• how fast tasking can be accomplished **…Sortie Generation, Throughput**
Infrastructure	• the physical requirements and facilities needed **…Flight Deck, Crew, Automation**
Interoperability	• seamlessly integrate and support joint force capability**…Joint, Coalition, COTP**
Survivability	• protect joint force capabilities **...Hull, Mass, Dispersion, Maneuver**
Accessibility	• the flexibility to bypass or operate within the physical constraints...**APOD, SPOD, Austere, Beach**























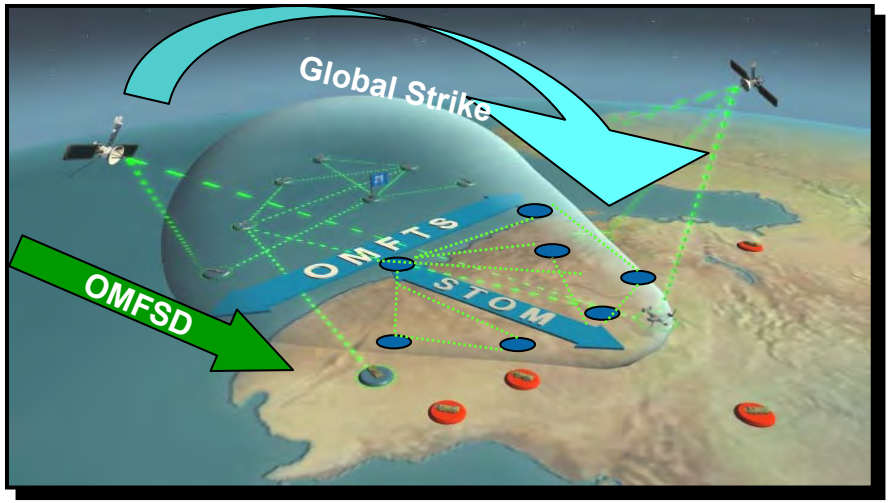




Framing the measures of effectiveness

Seabasing Joint Integrating Concept

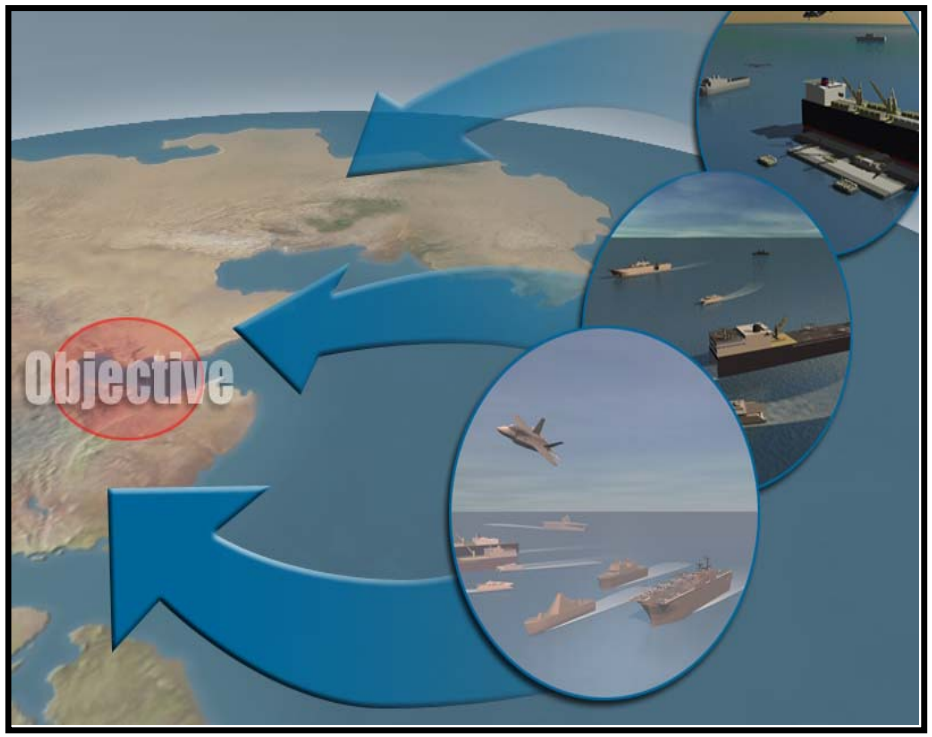
Principles



1. The sea as maneuver space
2. Leverage forward presence
3. Expand access options … reduce dependence on land bases
4. Create uncertainty
5. Protect joint forces
6. Scalable, responsive joint power projection
7. Sustain joint force operations

References:
National Defense Strategy
Defense Planning Guidance
National Military Strategy

Seabasing Joint Integrated Concept Principles



- The sea as maneuver space
- Leverage forward presence
- Create uncertainty
- Protect joint forces
- Scalable, responsive joint power projection
- Sustain joint force operations

Seabasing is defined as the rapid deployment, assembly, command, projection, reconstitution, and re-employment of joint combat power from the sea, while providing continuous support, sustainment, and force protection to select expeditionary joint forces without reliance on land bases within the Joint Operating Area (JOA). These capabilities expand operational maneuver options, and facilitate assured access and entry from the sea.

Scope for the Development of Seabasing

- **Develop a Seabasing Concept for 2015-2025 based on strategic guidance and aligned with the Service Transformation Roadmaps**
  - **National Defense Strategy (May 2005)**
    - **Secure access to key regions from the global commons**
    - **Use rapidly deployable military forces… speed**
    - **Deny our enemies sanctuary**
    - **Demonstrate the will to resolve conflicts decisively … persistence**
  - **Service Transformation Roadmaps**
    - **Army … *operational maneuver from strategic distances***
    - **Marine Corps … *operational maneuver from the sea***
    - **Air Force … *air and space expeditionary force***
    - **Navy … project power using *maneuver space provided by the sea***

References:
United States Army 2004 Army Transformation Roadmap, July 2004.
United States Air Force Transformation Flight Plan 2004.
Naval Transformation Roadmap 2003.

Joint Definition of Seabasing

Seabasing is …

- **Rapid deployment… and projection… of joint combat power from the sea**
- **Providing continuous support, sustainment, and force protection to select expeditionary joint forces**
- **Without reliance [as necessary] on land bases within the Joint Operating Area (JOA)**
- **Providing expanded operational maneuver options**
- **Facilitating assured access and entry from the sea**

Reference: Seabasing Joint Integrating Concept Section 2.3 Definitions.

Accelerate access… to rapidly seize the initiative in joint operations

Framing the Strategic Landscape

1. ***Support "Defense Strategy for the 21st Century"***
   - *Assure Access… Operational Availability*
   - *Defeat at a Distance… Strategic Challenges*

} **Speed**

2. ***Transform to "desired capabilities"… operating from***
   - *The Sea … that accelerate access forward*
   - *Space…that enable pervasive awareness*
   - *Cyberspace… that support networked joint operations*

} **Access**

3. ***Accept risk in capabilities that do not support***
   - *Distributed, netted, persistent*
   - *Immediately employable forward*
   - *Rapidly deployable surge*

} **Persistence**

Joint Operational Independence, Interdependence, and Capability Enabler

Sea Basing

- Phased At-Sea Arrival and Assembly
- Full Integration of Naval Logistics and Joint In-Transit Visibility (ITV)
- At-Sea Transfer of Personnel, Intermodal Containers and Out-sized Equipment
- Selective Offload
- Bulk Liquid Delivery
- Sea Based Maintenance Capability: Shipboard and Mobile

Sea Basing (cont)

- At-Sea Reload of NSFS Assets
- Sea Based Medical Capacity
- Decontamination/Isolation Capability
- Reconstitution at Sea
- Projection of Firepower for Support of Joint Forces Ashore
- Joint Command and Control
- Sea Base Platform Survivability

Navy Coastal Warfare

- Weapon to defeat sub-surface Anti-Swimmer
- Weapon to defeat sub-surface Delivery vehicle System
- Multi-role precision guided monition (PGM)
- Automatic target recognition system
- Distance support for maintenance
- Navy Infantry Combat ID system
- Sub-surface swimmer detection system
- Sub-surface delivery vehicle detection System
- Littoral ASW target sensor/link
- High-speed ballistic close-in weapons system

Explosive Ordnance Disposal

- Counter remotely controlled improvised explosive devices (RCIED)
- Standoff detection of explosives
- UUV buried mine detection and classification
- Diver buried mine detection and classification
- Precise navigation for divers and UUVs
- Physics based modeling of unexploded ordnance
- Non-explosive limpet mine neutralization
- Improved communications link for unmanned systems
- 3-D sonar detection capability for limpet mine mission
- Obstacle avoidance sonar

Navy Special Warfare

- Manpower
  - Industry leveraging media, academia and national think tanks.
- C4ISR
  - Full spectrum compatibility (land, sea, air and space)
- ISR platforms/sensors
  - UAVs, UUVs and USVs
  - Unattended sensors - Persistent, miniature, man-portable and multi-spectral
- Signature management
  - Reduce multi-spectral signatures of SOF operators, vehicles and weapons
- IED Detection and Defeat.
- Seabasing Platforms would be:
  - Blue, Green and Brown water capabilities (surface and subsurface)

Amphibious Warfare

- **Under LCAC/Seabase to Shore Connectors:**
  - **Enhanced or new skirt technology**
  - **Improved Lift fans , Improved Propulsion system**
  - **Improved Reliability, Maintainability and Availability (RM&A)**
- **Under MPF(F):**
  - **Selective offload capability.**
  - **Skin-to-skin mooring technologies**
- **Under Current Ship requirements:**
  - **Reduce the Footprint**
    - **Weight, size, power, bandwidth**
  - **Build in *INTEGRATION* with the ships at the beginning of the design cycle**

Mine Warfare

- Sensor to detect buried mines in the water and on land
- Sensor to detect stealthy mines
- Surface influence sweep
- Emulation sweep
- Pressure mine sweep
- Standoff breaching systems for beach and surf zones
- Remote command and control capability for undersea environment
- Cooperative and “smart” unmanned vehicles
- Autonomous underwater weapon

Headquarters U. S. Air Force

Integrity - Service - Excellence

Air Force Command and Control & Intelligence, Surveillance and Reconnaissance Center



Col Greg Pietrocola
ANG Advisor to the Commander,
Air Force C2 & ISR Center

U.S. AIR FORCE

What is it .....



What happens when we don't deliver net-ready capability to the field!

U.S. AIR FORCE

Welcome to C2 & ISR Integration

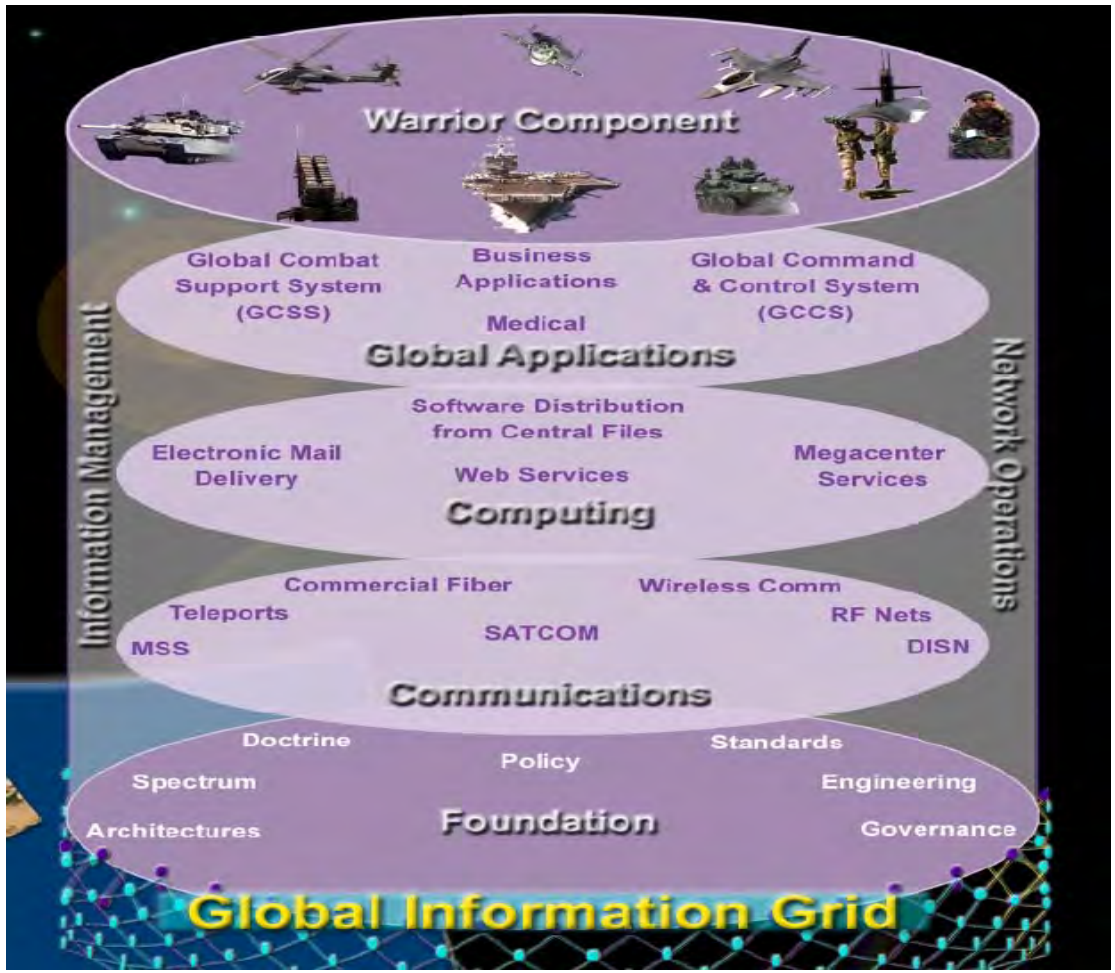
- Everyone loves integration as long as you integrate with me
- I provide a product and my job is done (but someone else's is just beginning)
- Sometimes four pieces of information are worse than one
- What's a pound of Command and Control or ISR worth?
  - And how much does it cost?
- Our Planning, Programming and Budgeting System (PPBS) = four IT generations (Moore's Law)

U.S. AIR FORCE

C2ISR Enterprise: The DoD Perspective

A single secure Grid providing seamless, end-to-end capabilities to all warfighting, national security, and support users

Supports the Department of Defense and Intelligence Community requirements from peacetime business support through all levels of conflict



U.S. AIR FORCE

Defining Our Terms

- **Joint Command and Control (JC2)**
  - DoD's principal capability to provide an integrated, seamless and net-centric environment at all echelons
- **Air and Space Operations Center (AOC)**
  - Worldwide C2 nodes which enable a Combined Forces Air Component Commander (CFACC) to command airpower in support of a combatant commander
- **Distributed Common Ground System (DCGS)**
  - AF's primary Tasking, Processing, Exploitation, and Dissemination (TPED) facility for U-2, Global Hawk, and Predator weapon systems, with links to national agency data and comm infrastructure

U.S. AIR FORCE

AFC2ISRC Mission

Modernize, Improve, and Seamlessly Integrate C2ISR Capabilities to Deliver Combat Capability Across Joint Forces

AFC2ISRC
14 Locations
600 Personnel





Langley AFB (Hampton), Virginia

Commander's Intent – Supporting the Warfighter:

- Develop C2 Constellation
- Modernize and integrate Air Operations Center (AOC) and Distributed Common Ground Station (DCGS)
- Engage the Joint Warfighter

U.S. AIR FORCE

Commander's Intent

Develop C2 Constellation

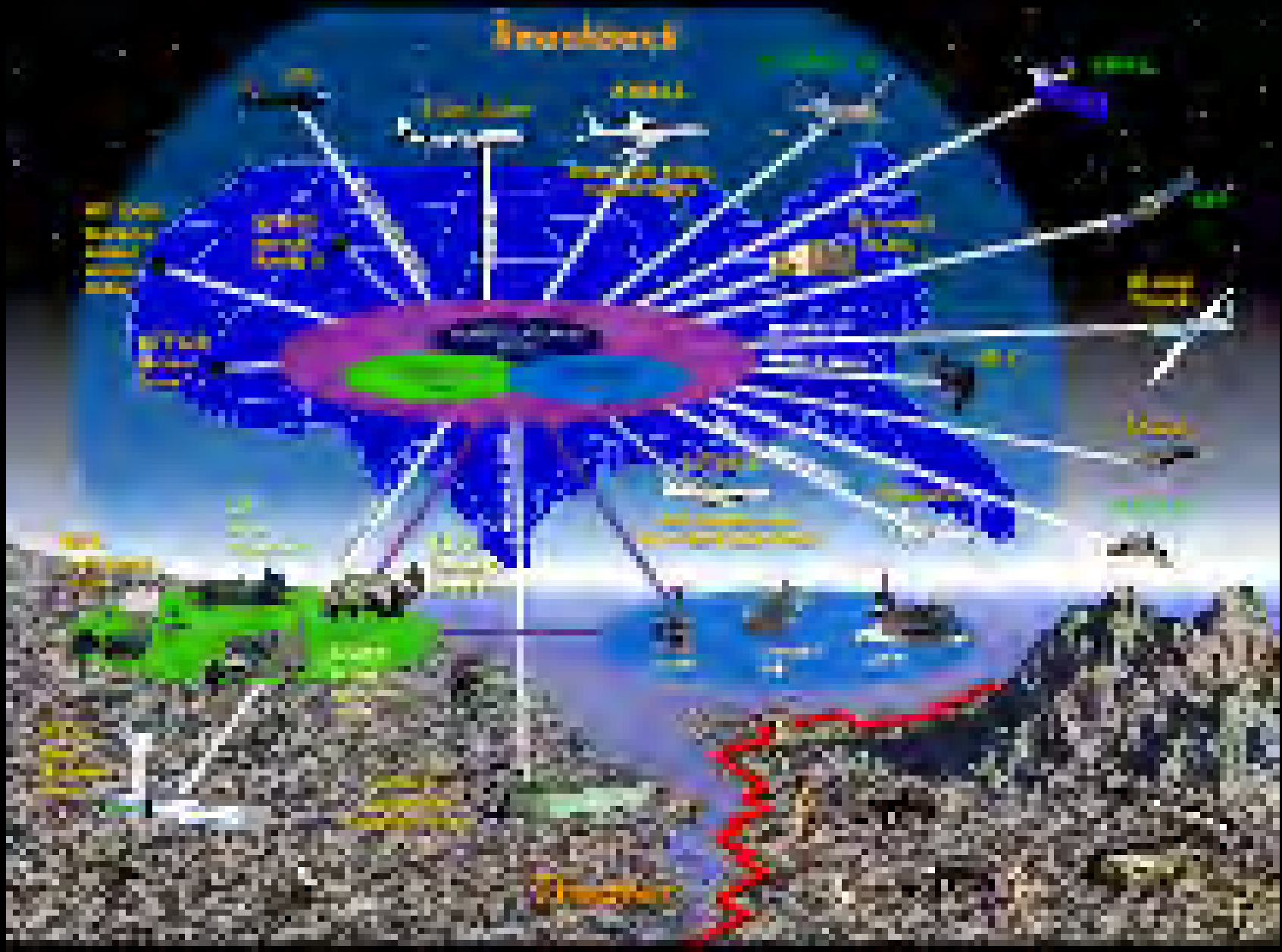
- A Network-Centric Family of Systems
- Seamless Information to Command and Control Forces
- Air / Space / Surface and Manned / Unmanned Vehicle Integration



"The development and deployment of a truly modern and effective command, control, communication, and intelligence system is fundamental to the transformation of the US military forces …. "

— Secretary of Defense Donald Rumsfeld

. . . . and winning wars



U.S. AIR FORCE

C2 Constellation in context

- Work the AF input from the operations perspective
- Press for integration and interoperability of current, upcoming, and future systems
- Enable Joint Mission Areas
- Support SecDef Interoperability & Connectivity objectives
- Ensure AF C4ISR meets DoD Transformation / Joint BMC2 goals



It's not about platforms, sensors and nodes
It's about supporting the Joint Force Commander by increasing air & space power through information integration

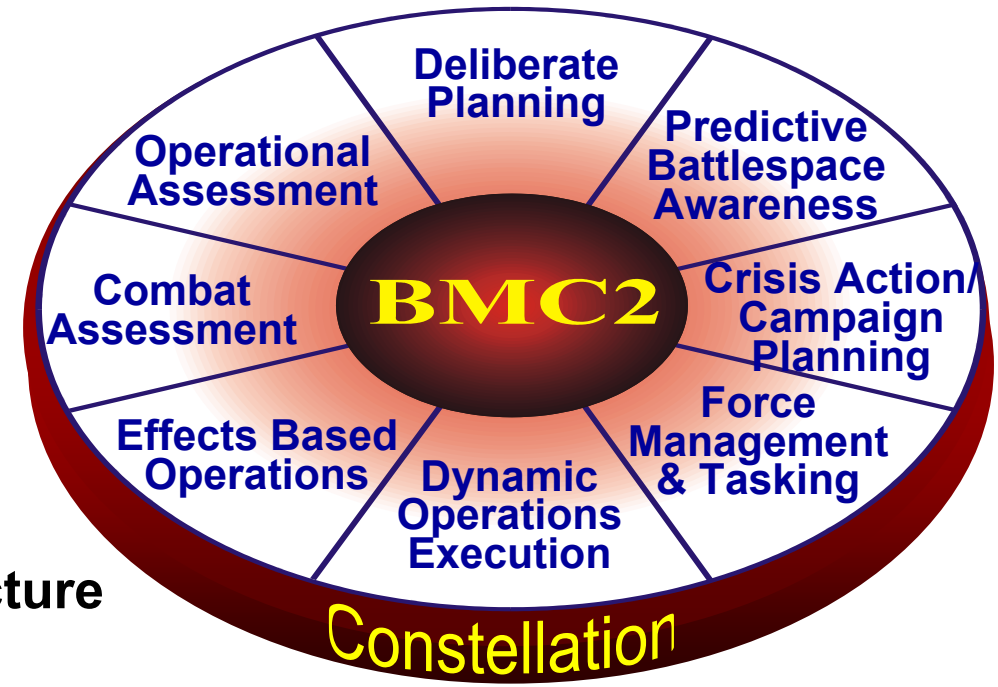
C2 Constellation - BMC2 Traits

U.S. AIR FORCE

BMC2 is….

- People executing the AF Space & C4ISR Task Force CONOPS through
- C2 processes, achieving Effects- Based Operations & Predictive Battlespace Awareness, enabled by the
- C4ISR technology resident in the Network-Centric Infrastructure of the Constellation
- Constellation produces decision-quality information
- BMC2 creates an intuitive decision making environment

BMC2 Enabled Tasks



U.S. AIR FORCE

Commander's Intent

Modernize and integrate AOC and DCGS





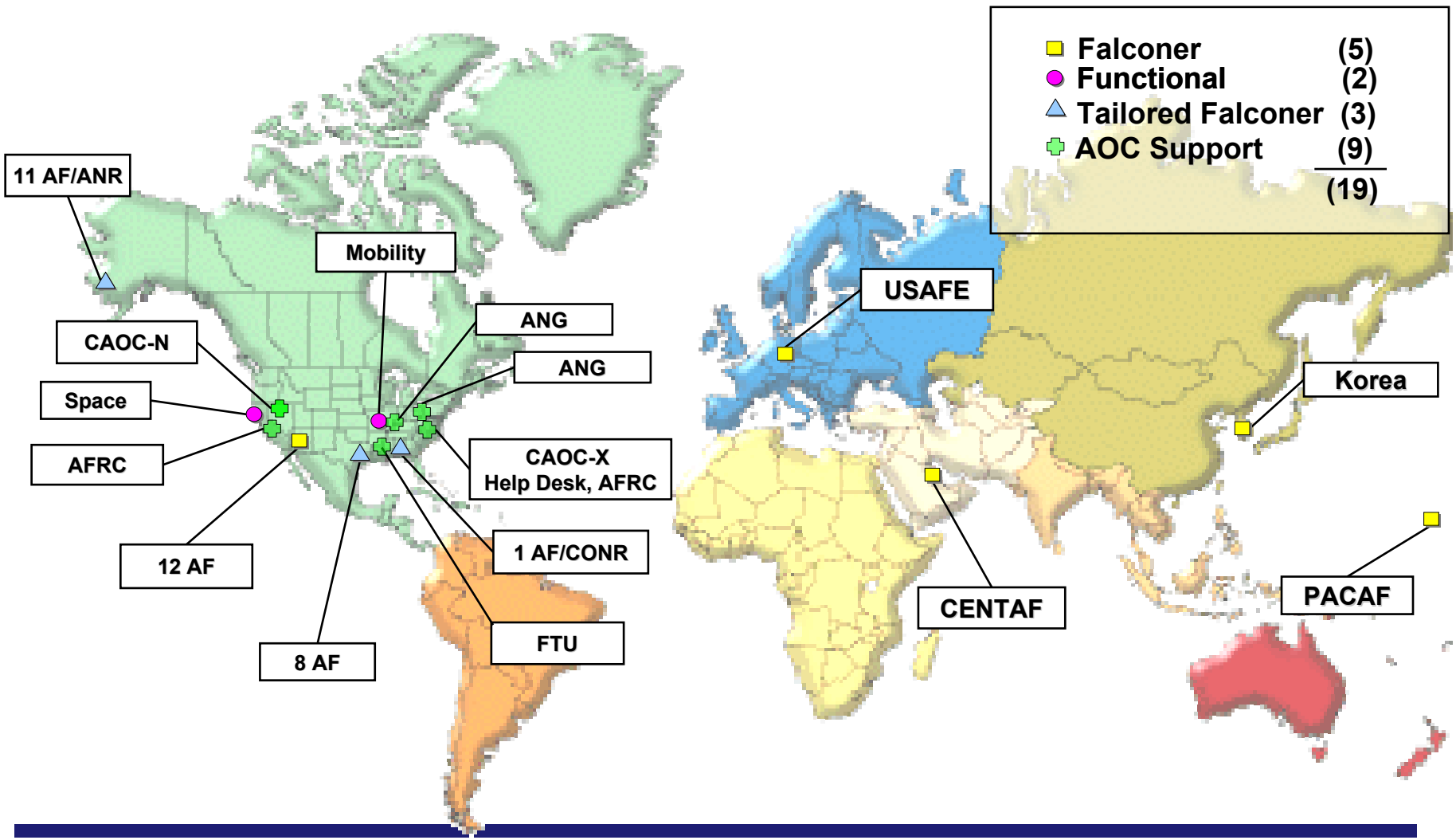
- *Functional Flexibility*
- *Net-Centric Globally Connected*
- *Effects Based Strategy Dvlpt / Asmt*
- *Dynamic Tasking / Execution*
- *Dynamic Airspace Management*
- *Predictive Battlespace Awareness*
- *Advanced Info Management*
- *Reduce Forward Manpower by 2/3*
- *Flexible Coalition Interoperability*
- *Train as we Fight*

Leading the Way to JC2

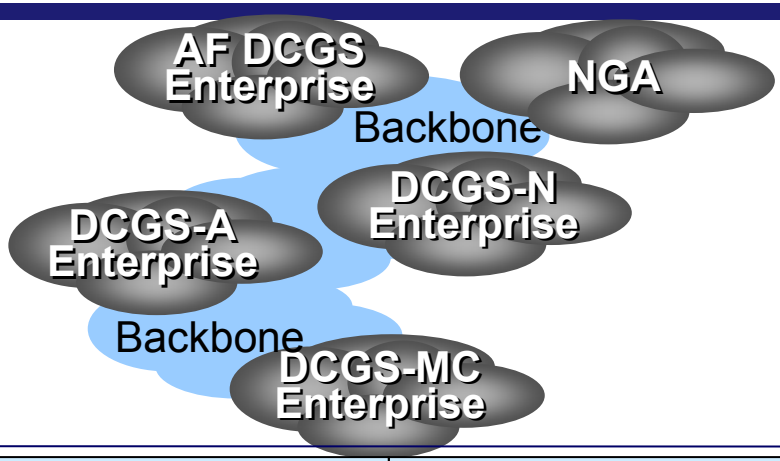
Integrity - Service - Excellence

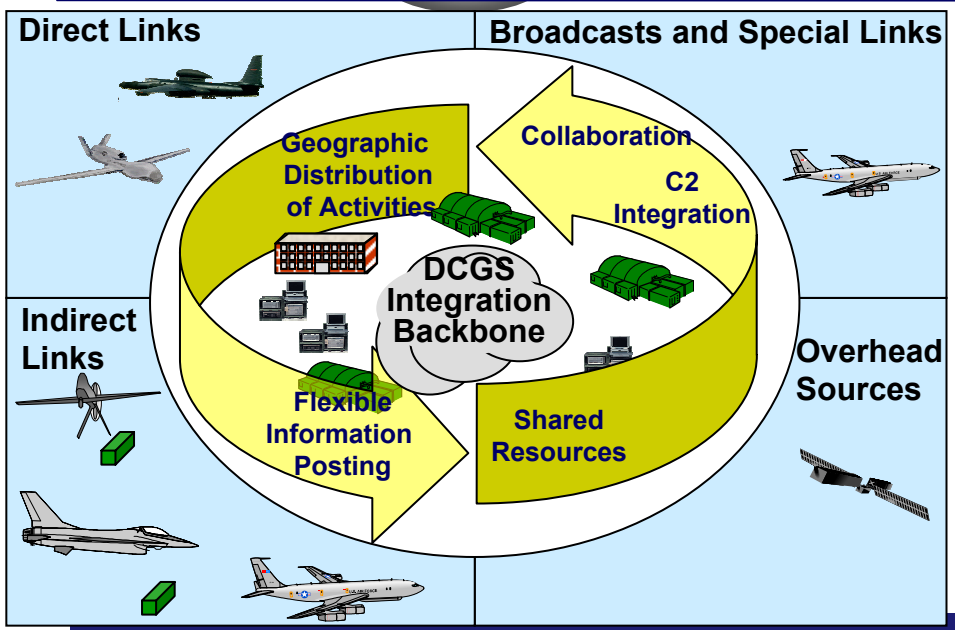
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Current AOC Locations & Types



DCGS Integration Backbone (DIB)





- Multi-Service collaboratively defined core architecture
- Ground-rules for accessing the system
  - Required standards
  - Interface mechanisms
  - Information definitions
- Ability to get at and move information
  - What information is available
  - Where the information is
  - Where it needs to go
  - What processing services are available
- Enterprise system services
- Available to all Services & Agencies

U.S. AIR FORCE

Commander's Intent

Engage the Joint Warfighter

Joint C2 Requirements Stakeholders	Concept
Joint – JFCOM	Joint BMC2
USAF – AFC2ISRC & ACC	C2 Constellation / ConstellationNet
USA – TRADOC	LandWarNet / Objective Force / Future Combat System
USN – NETWARCOM	FORCEnet



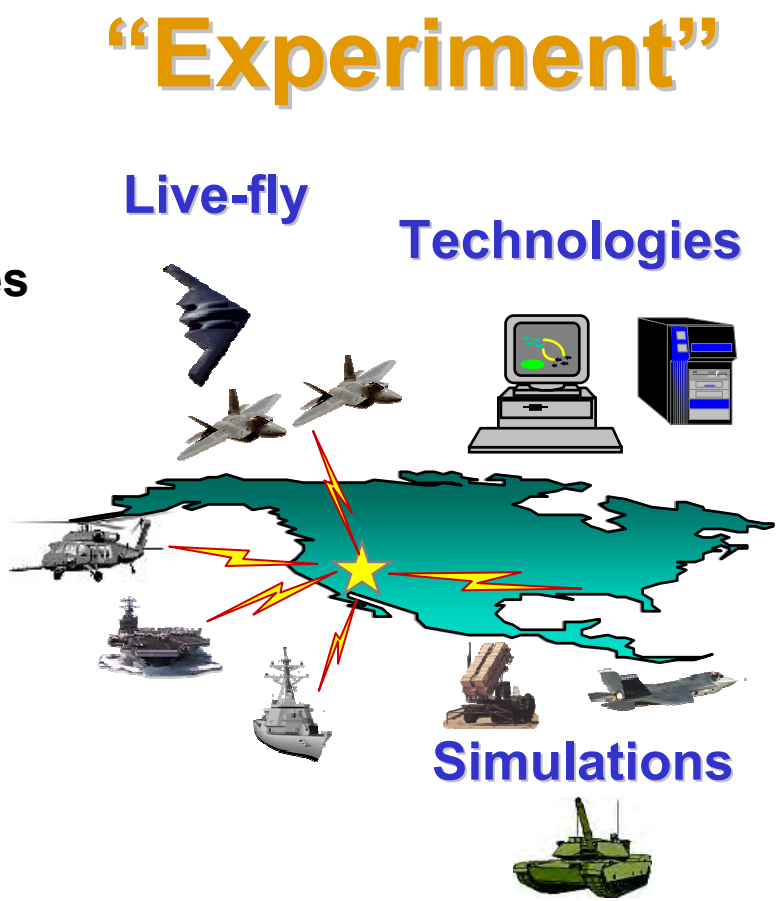
- Army, Navy and Marine Corps plus industry strategic partnerships
  - Multi-Service C4ISR Integration Steering Group
- Airman's voice to JFCOM Board of Directors
  - Ensure airpower C4ISR fully integrated with JBMC2 joint solution set

Tidewater C2 Community is Unique

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Engaging the Joint Warfighter

- Joint Expeditionary Force Experiment (JEFX)
- Multi-dimensional
  - Controlled, operationally- realistic warfighting environment
  - Live, constructive, and virtual entities
- Multi-functional exploration
  - Networked environment
- Multi-national, multi-service integration
- Makes recommendations for the rapid transition of deserving capabilities



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CSAF JEFX 06 Guidance

- Apr 06, Robust live-fly, Joint & Coalition at CAOC-N
- Focus entire effort on Network Centric Ops
- Approximately six major initiatives directly support overarching theme
  - TBONE (MLS and Integration of TBMCS Capabilities)
  - DLARS → WEEMC (real-time SA and execution via datalinks)
  - Airborne IP networks
  - ISR (integration of current visualization and fusion efforts)
  - Homeland Security
- Capitalize on emerging capabilities to better integrate the Falconer Weapon System

Emphasis on integration and links in JEFX 06

U.S. AIR FORCE

JEFX 06 Focus

- Achieve / field four capability goals with Joint and Coalition play
  - Continuous Air Planning and Dynamic Execution
  - ConstellationNet
  - ISR Fusion
  - Homeland Security / Defense
- Accomplish three overall effects:
  - Field TBONE (as core of TBMCS 1.1.4) and tighten CAOC integration by reducing applications, hardware, and number of seats by 30%
  - Expand datalink use
  - Extend network to link operational to tactical
- Demonstrate the Decision Support Module (DSM) concept on a non-interference basis

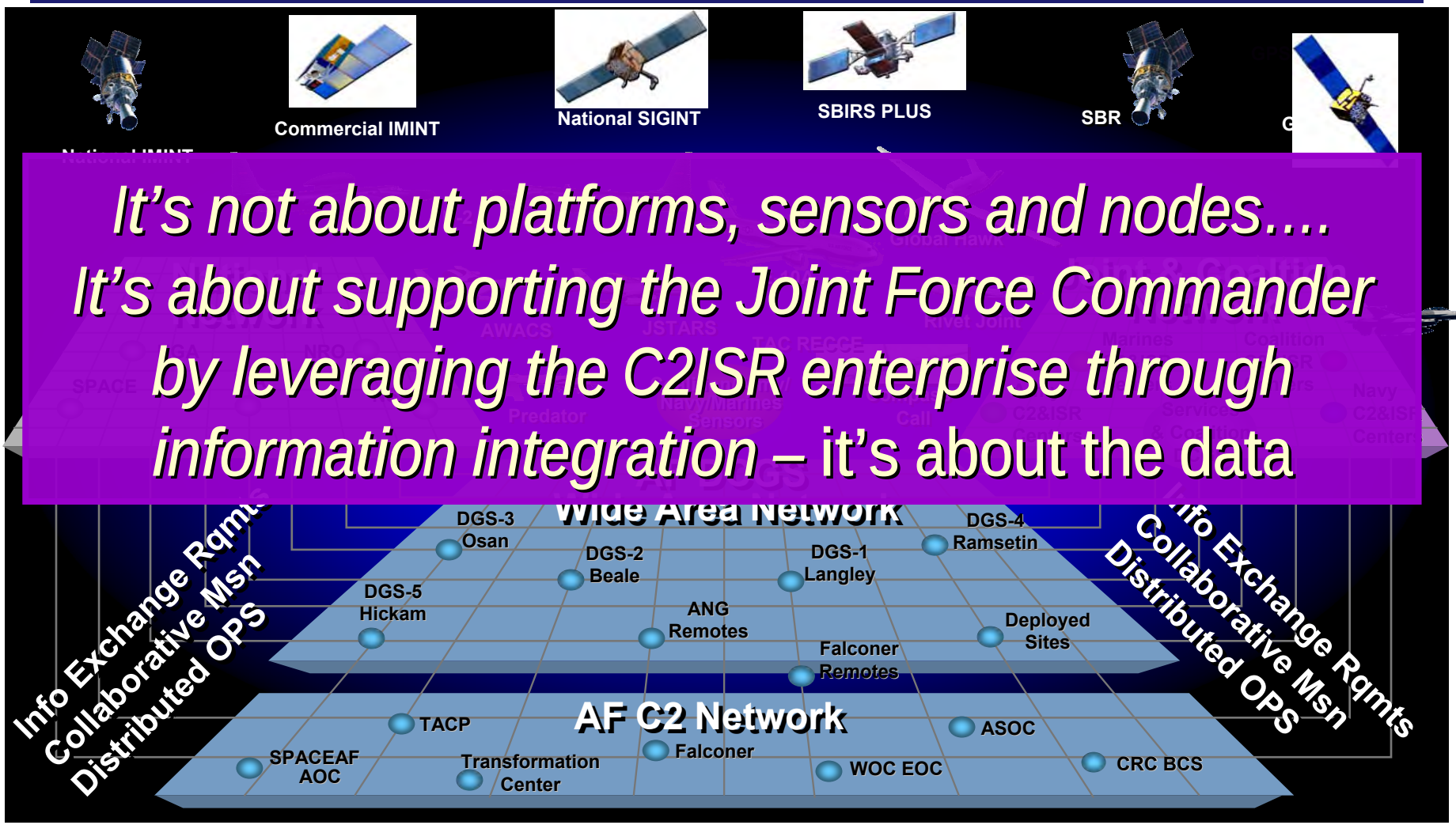
U.S. AIR FORCE

JEFX 06 Initiatives

- **Continuous Air Planning and Execution**
  - Network-Centric Weather Integration (*Weather in AOC*)
  - Non-Traditional ISR Information Services (*NTISR*)
- **ConstellationNet**
  - Battlefield Airborne Communications Node (*High Altitude Comm*)
  - SOF Warfighter Information Process Enhancements (*Battlefield Airman Operations*)
- **ISR Fusion**
  - Fusion for the AOC (*Multi-INT Icon*)
- **Homeland Security / Defense**
  - Base Support & Expeditionary (*ACS Integration*)
  - Combat SkySat I (*Near Space Vehicle*)
  - Global Hawk Maritime Demonstration-Maritime Domain Awareness (*Homeland Security COP*)

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Transformation Objective
Network Centric C2 & ISR Environment



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Our Collective Challenge

- Ensure systems, policies, and people meet interoperability capabilities demanded by Network-Centric Operations
- Determine way ahead to lead C2 & ISR path to Joint Command and Control
- Integrate today's emerging concepts... JFCC-ISR, JIOCs, DoD DCGS, RSCs, and others

U.S. AIR FORCE

TBONE Demo

- **Theater Battle Operations – Net-Centric Environment**
  - **A new way to integrate the ATO process by opening the architecture to improve Machine to Machine interfaces**

Play Demo

Urgent Requirements - an I MEF G-9 Perspective

LtCol John Pioli, USMC

NDIA EWC

27 October 2005

UNCLASS

Urgent Requirements

- During Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF)
  - Warfighters needed a process to provide a rapid acquisition of a capability in order to meet an urgent requirement to enhance their capability.

G-9's Mission Statement

To identify and shape innovative solutions for capability-driven warfighter requirements.

Requirement identification Process

- G-9, in partnership with:
  - **I M**arine **E**xpeditionary **F**orce (**I MEF**)
  - **M**arine **F**orces **P**acific (**MARFORPAC or MFP**)
  - **M**arine **F**orces **C**entral **C**ommand (**MARCENT**)
  - **M**arine **C**orps **C**ombat **D**evelopment **C**ommand (**MCCDC**)
  - **M**arine **C**orps **S**ystems **C**ommand (**MCSC**)

Requirement identification Process

- The Marine Corps developed the
  - **U**rgent **U**niversal **N**eed **S**tatement (**UUNS**) process

Urgent UNS Process

- Driven by priorities of the warfighter
  - *Extensive use of liaisons to speed staffing*
- Compressed version of an *existing* process
  - *Several years reduced to several months*
    - *Limitations associated with this*
- High visibility with Senior Leadership
  - **M**arine **R**equirements **O**versight **C**ommittee
    - (**MROC**)

Urgent UNS Process

- Process governed via Marine Admin Instruction (**MARADMIN**)
- Operating forces determine and prioritize urgent capability requirement
- Staffing expedited at all levels
- Senior leadership forum (**MROC**) for rapid decisions
- Fielding expedited by Acquisition Command

Urgent UNS Staffing Flow

Initial research and analysis

Reviews and prioritizes

MARCENT

MarCorSysCom





End



Fielded Equipment

MARFOR

MCCDC

Inputs into system initial assessment

MEF

DWG

MROC

DC, P&R

Start

MCWL

Review by integrators and advocates

Decision

Funding

Consolidates actions from the four distinct phases of EFDS

UNCLASS

Additional Requirement Identification Processes

- **O**perational **N**eed **S**tatement (**ONS**)
- **J**oint **U**rgent **O**perational **N**eed **S**tatement (**JUONS**)

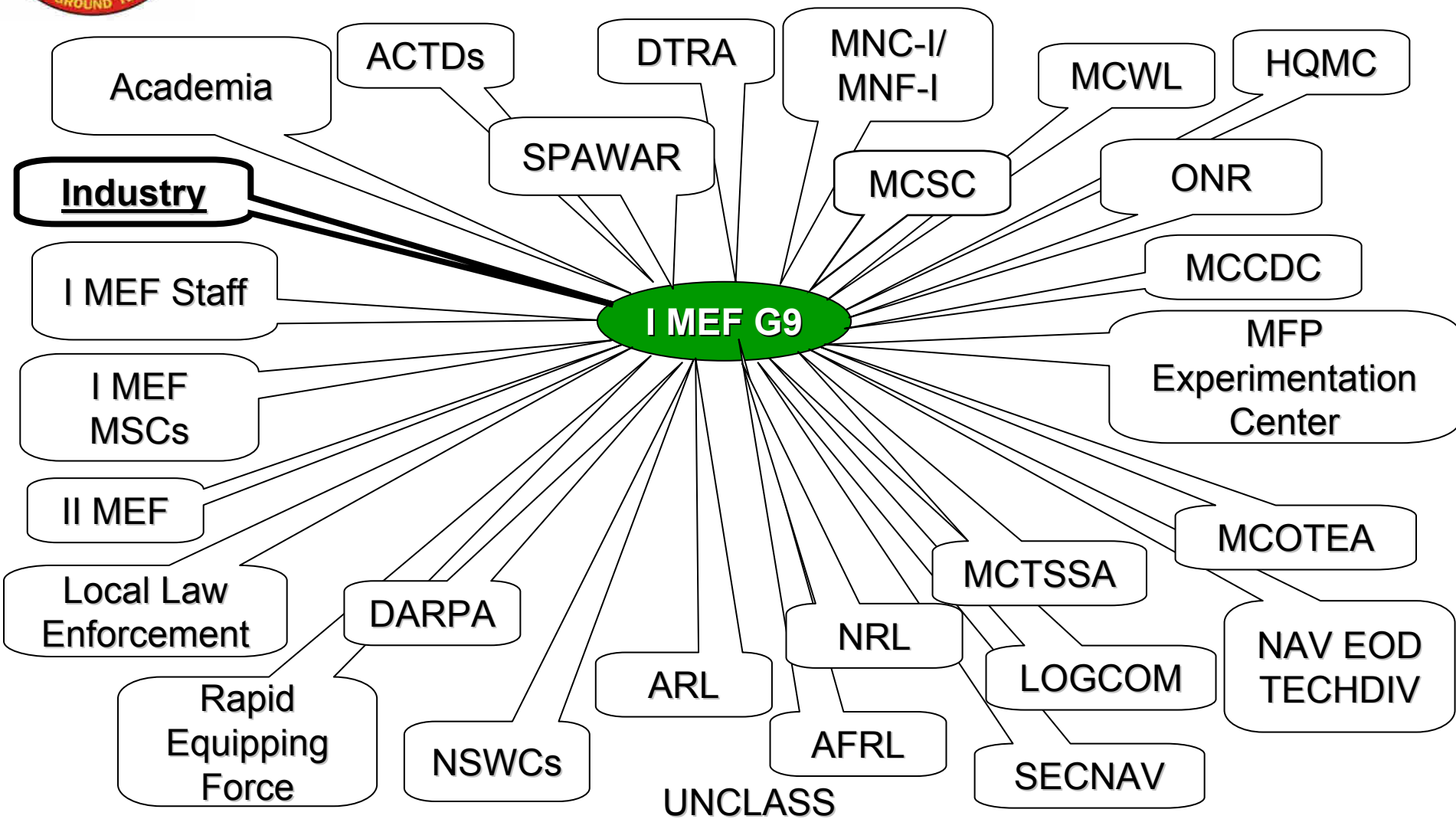
Sources of Solution

- **M**arine **C**orps **S**ystems **C**ommand (**MCSC**)
- **M**arine **C**orps **W**arfighting **L**ab (**MCWL**)
- **D**efense **A**dvanced **R**esearch **P**rojects **A**gency (**DARPA**)
- **O**ffice of **N**aval **R**esearch (**ONR**)

Sources of Solution

- US ARMY
  - **A**rmy **R**esearch **L**ab (**ARL**)
- US Air Force
  - **A**ir **F**orce **R**esearch **L**ab (**AFRL**)
- **A**dvanced **C**oncept **T**echnology **D**emonstration (**ACTD**)
- Industry
- And many others

G-9 Relationships



I MEF Rapid Requirements

- ***Sample successes.***
  - ***Inherent limitations..***
    - ***Learning process…***
      - ➢ ***The future….***

Sample Successes



Marine Armor Kit (MAK)



M1114 Up-Armored HMMWV

MCTAGS



MTVR Armoring System (MAS)



UNCLASS

Sample Successes

✓ SHERPA

- **Precision airborne delivery capability for loads 250-2000 lbs.**
- **Delivery from 10,000ft with error less than 35m from target.**



UNCLASS

Sample Successes

✓ Blue Force Tracker

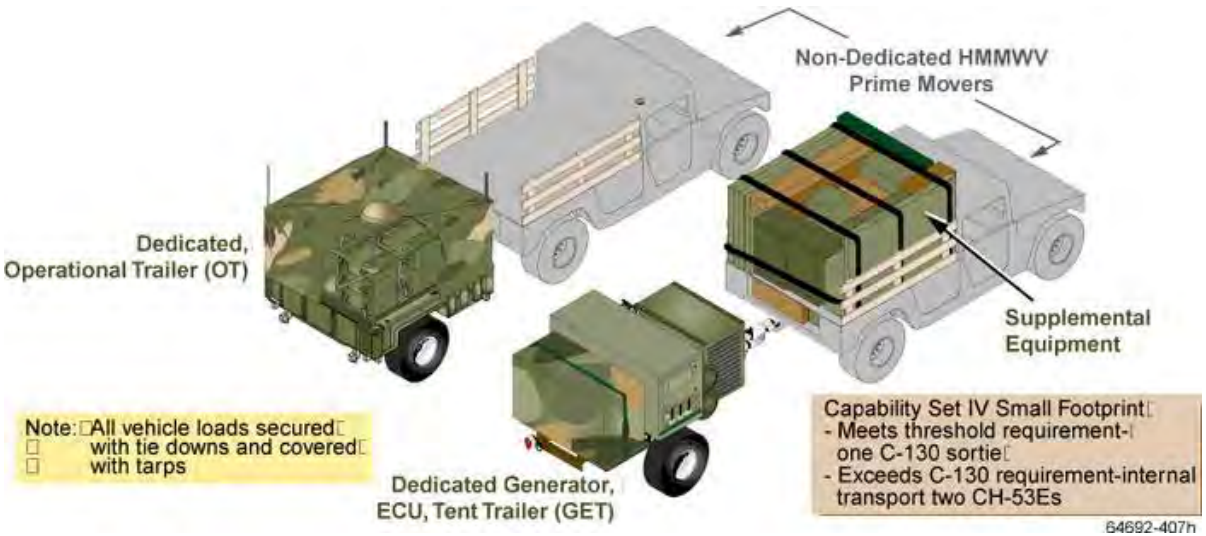
- **Provides near real-time position location of friendly forces and limited "chat" capability.**
- **Works beyond line-of-sight through satellite.**



Sample Successes

✓ **U**nit **O**perations **C**enter

- **Integrated communications package (internal & external)**
- **Provides new shelters, tents & generators**



Sample Successes

- ✓ Cougar Joint Explosive Ordnance Disposal Rapid Response Vehicle



Sample Successes

✓Scan Eagle UAV



- **Endurance: 20 hours**
- **Operational Range: 110 km**
- **Loiter time - max range: 12 hrs**
- **Averaging 600 hours/month**

Sample Successes

✓ EOD Robotics

- **Large robot with articulating arm (6ft reach) and camera for use with remote de-arm equipment.**
- **Remote with RF (650m) or fiber optic cable (1200ft).**



Sample Successes

Most popular

urgent requirement submitted

(38 times!)



Sample Successes

- ✓ Warfighter has a powerful voice in articulating warfighter needs and command support for innovative thinking
- ✓ Capability solution product acquisition reduced from *several years* to *several months*
- ✓ Efficiency and effectiveness of the Marine warfighter - never better

Inherent Limitations

- Urgent requirements funded for one year
  - *Procurement funds are regulated by law*
- Beta versions of equipment requested
  - *Warfighters were willing to accept the risk of acting as the testing mechanism*
    - *Response to need vs. full capability*

Inherent Limitations

- Tactics Techniques and Procedures (TTP) for new equipment
  - *Improvised use of new equipment (to meet the changing situation) required improvised use of the TTPs.*
    - *Continual feedback to MCSC and MCCDC*

Learning Process

- Warfighter evaluates the new technology
  - OK, now that we used this innovative technology for some length of time,
    - *How well did it work?*
    - *Was it worth the effort?*
    - *How could we improve it?*
      - *MCSC is constantly tailoring the procurement to meet the need.*

Learning Process

- No readily available capability solution to requirement
  - *Industry throughput limitations*
  - *We want what does not exist*
- Tailoring equipment to meet the environment
  - *What works in Kansas may not work in the Middle-east*



The Future

- Warfighters continue to provide feedback to the Marine Corps and industry.
  - Formal and informal methods
- Now, with end users having “been there - done that”
  - *Lessons learned can be incorporated into future solution developments.*

The Future

- I MEF anticipated requirement priorities:
  - Counter IED
    - Identify, Pre-detonate, Jam
    - EOD capability enhancements
  - C3 Systems
    - C2, collaborative planning tools, expeditionary distributed links, long range communications

The Future

- Force protection
  - Facility hardening, FOB security systems, vehicle & body armor, sniper detection
- Surveillance / Fires
  - UAVs, sensors, tactical video transfer/links
- Language translation / Cultural training
  - Handheld devices, software, training

Closing Comment

- All warfighters in support of the global war on terror - past, present, and future thank all of you for your continued tireless support.

Questions?



LtCol Pioli

ACRONYMS

- C2: Command and Control
- C3: Command, Control, and Communications
- DC: Deputy Commandant
- DOTMLPF: Doctrine, Organization, Training, Materiel, Leadership and education, Personnel, and Facilities
- EOD: Explosive Ordnance Disposal
- FOB: Forward Operating Base
- IED: Improvised Explosive Device
- MAGTF: Marine Air Ground Task Force
- MCTAGS: Marine Corps transparent Gunner Shield
- MEF: Marine Expeditionary Force
- P&R: Programs and Records

Speaker

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  - I MEF G-9
- 760-763-2603 (DSN 361)
- john.pioli@usmc.mil
- piolijm@I-mef.usmc.smil.mil

Networked Naval
Command and Control

FORCEnet

The Naval Component of the GIG

Command and Control Component of Sea Power 21

Enterprise Wide

a Process and a System

Presented by:
CAPT Rick “Simo” Simon - NNWC
Date: 25 Oct 2005

SSG Definition

"FORCEnet is defined as the operational construct and architectural framework for naval warfare in the Information Age, integrating warriors, sensors, command and control, platforms, and weapons into a networked, distributed combat force."

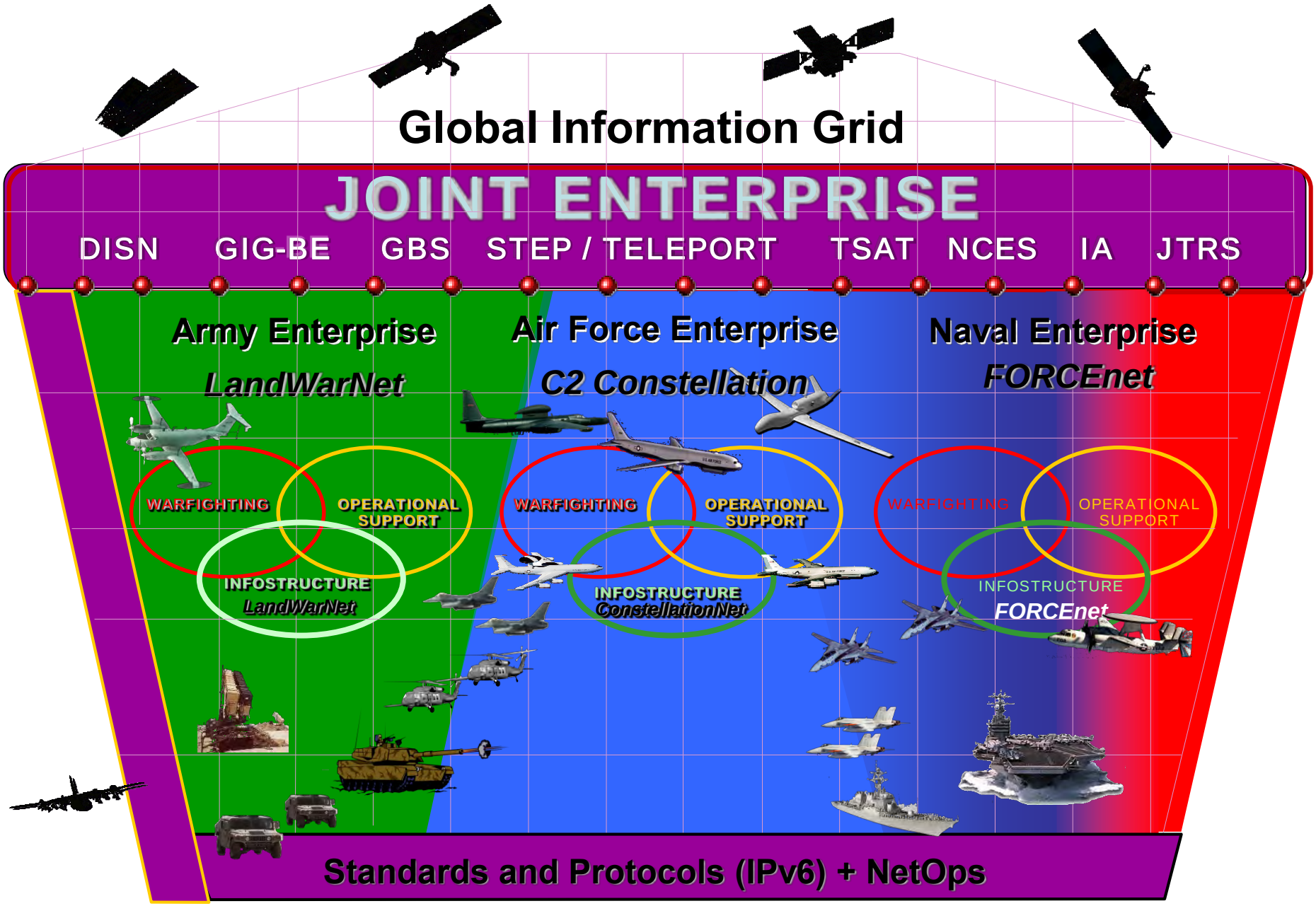
What is the Operational Definition of FORCEnet?

Networked Naval Command and Control

Operational Definition of FORCEnet:

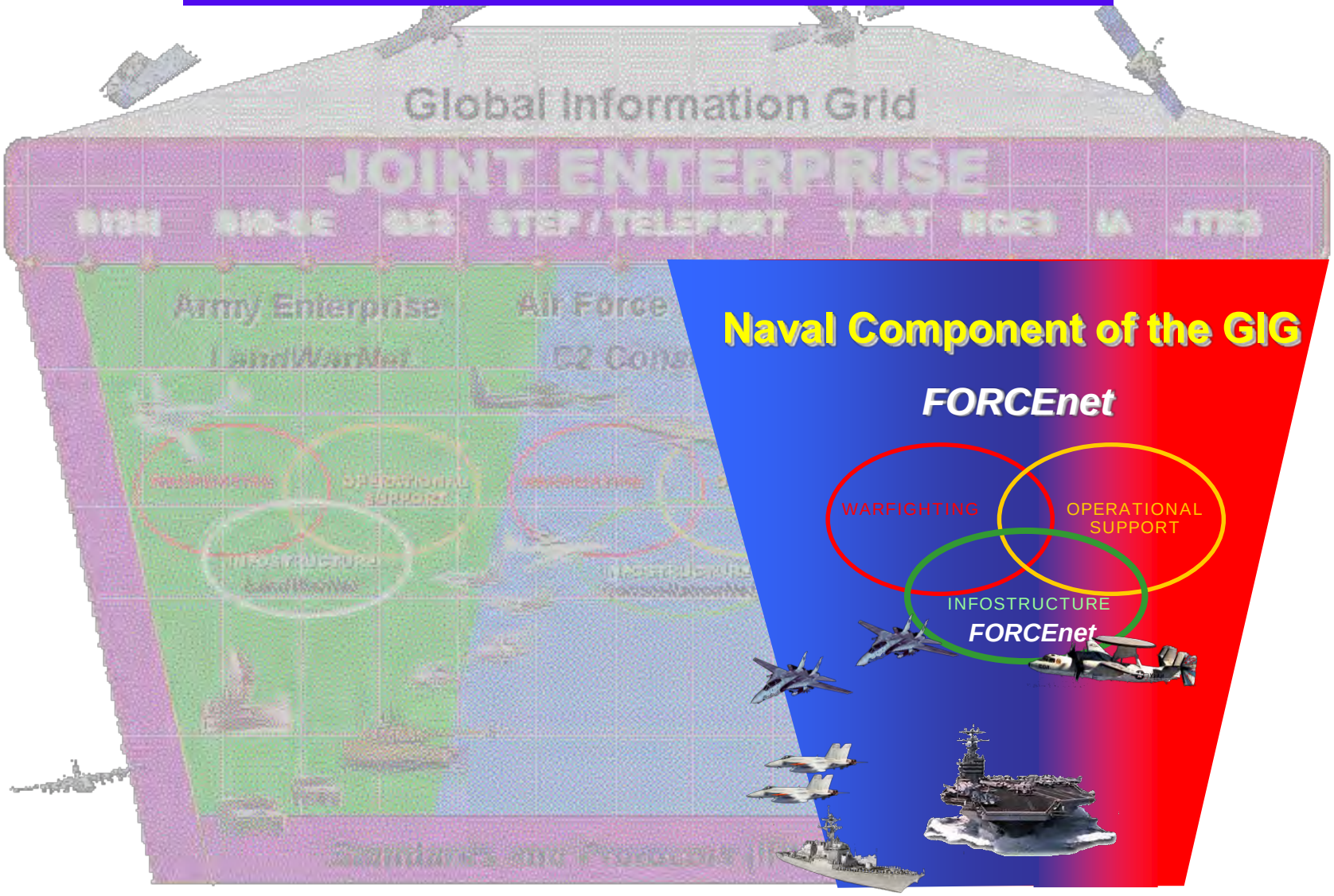
- **Systems and process for providing networked naval command and control.**
  - Provides means and methods for commanders to continuously make the *best possible decisions faster* and see to the *effective execution* of those decisions.
- **System: What commanders *use.***
  - *Infostructure (people, information and C4 systems) supported by the enterprise wide DOTMLP-F*
- **Process: What commanders do.**
  - Accelerate C2 by changing the way information moves
  - Collaborative, distributive enterprise approach
  - Self-synchronization of multiple decision cycles

The "System" FORCEnet



The "System" FORCEnet

FORCEnet Information Infrastructure

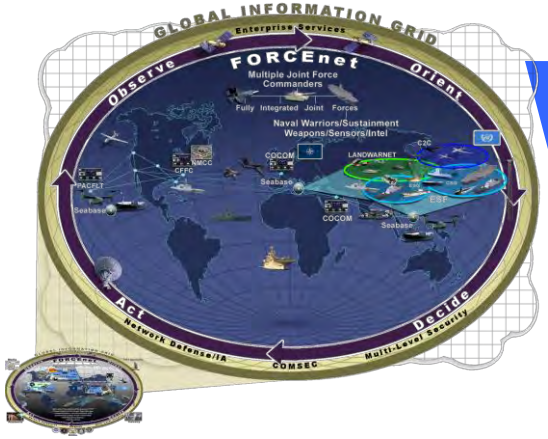


The "System" FORCEnet

Enterprise Wide



Warfighting Domain

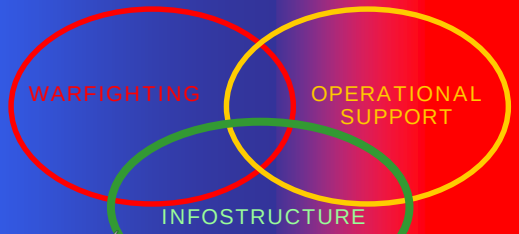


Business Domain



Naval Component of the GIG

FORCEnet





FORCEnet Information Infrastructure

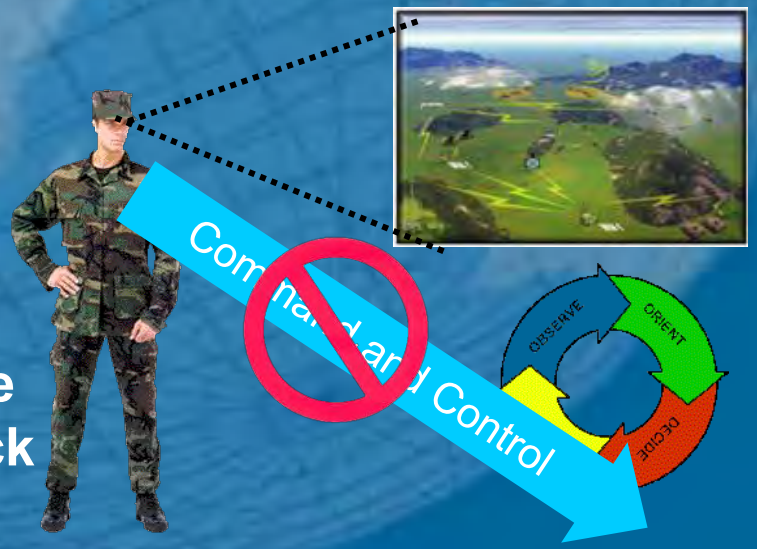
The "System" FORCEnet



Networked Naval Command and Control



- **Control emerges from the collective and transparent actions of various decision makers exercising judgment and authority within their own spheres through *broad* awareness.**



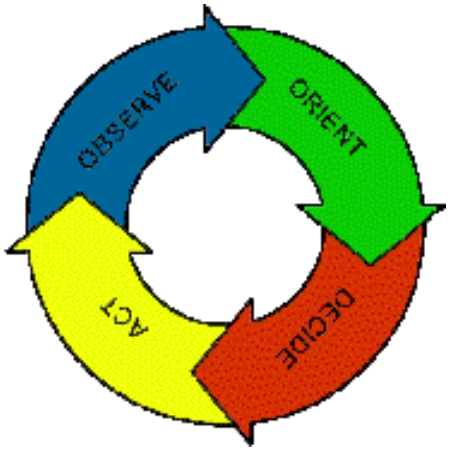
- **Control is NOT something seniors impose on subordinates... It is a state the entire system achieves based on feedback about the developing situation.**

The “Process” FORCEnet

Commander Sees Overall Arena







Orders for Action





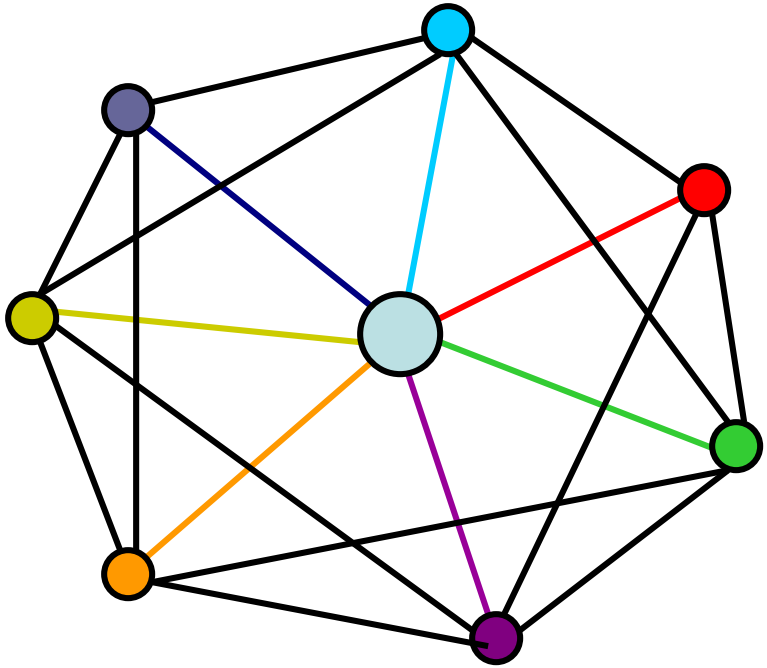




Blue Forces Begin Engagement

The “Process” FORCEnet

Every node in the Network



Decentralized

Can Be:
- Procedure
- Processor
- User of Information

Cumulative Networking Effect!

All Readily Available to Any Node!

The "Process" FORCEnet

C2 Characterized By:

Shorter Decision Cycles

Enhanced Shared SA

Informed Self-Synchronization

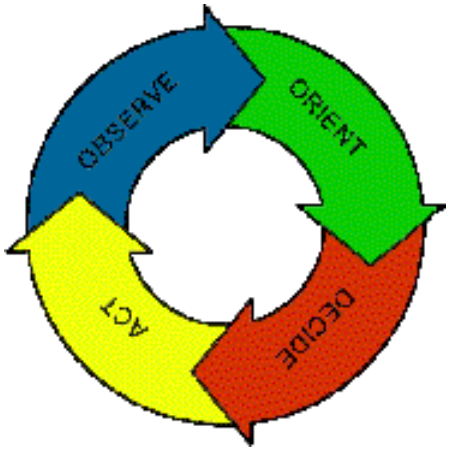
Across the Entire Enterprise

The “Process” FORCEnet

Commander Sees Overall Arena



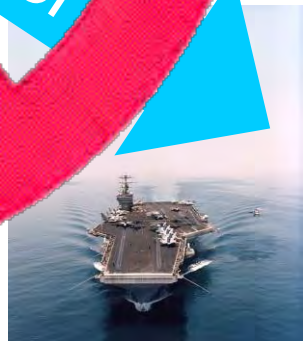




Comma

Ord tion

Control









Blue Forces Begin Engagement

The "Process" FORCEnet

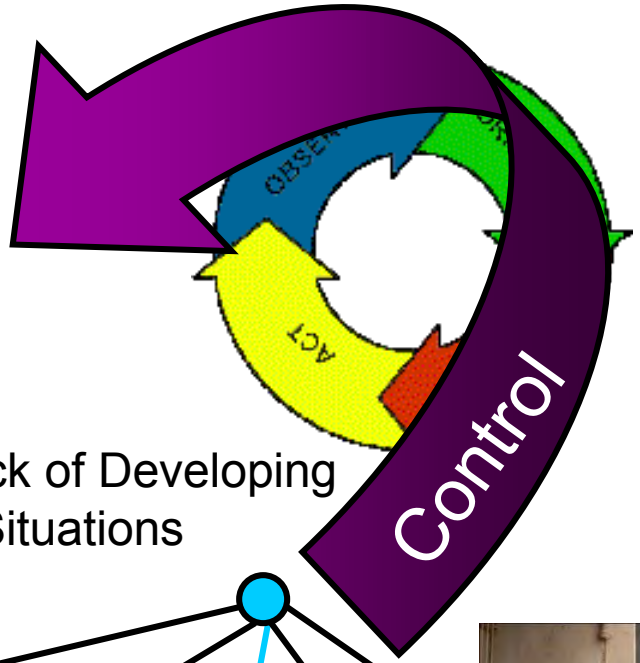
Commander Sees Overall Arena



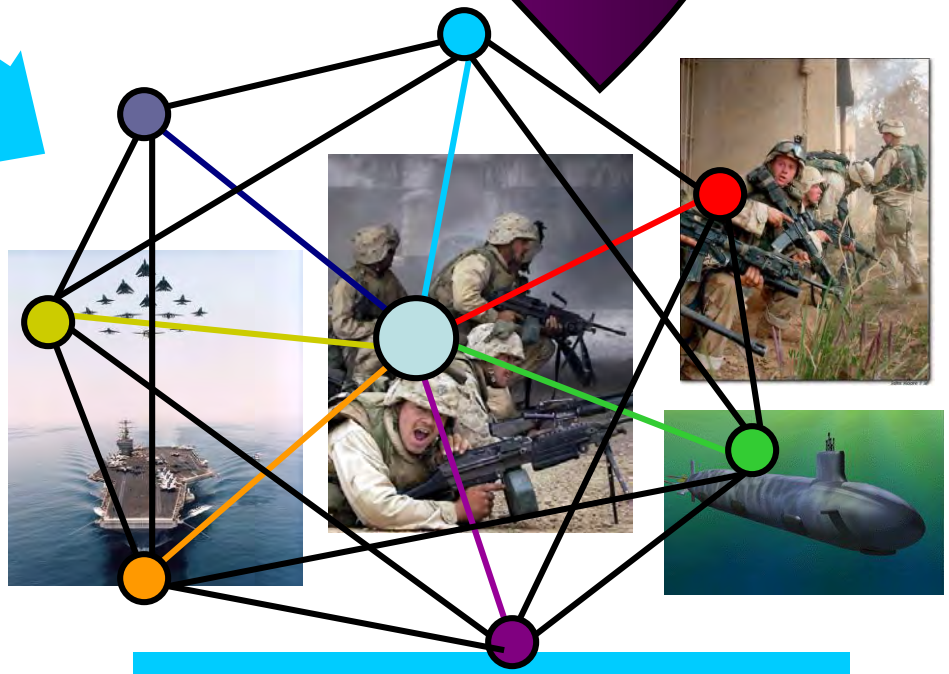


Command

Orders for Action



Feedback of Developing Situations

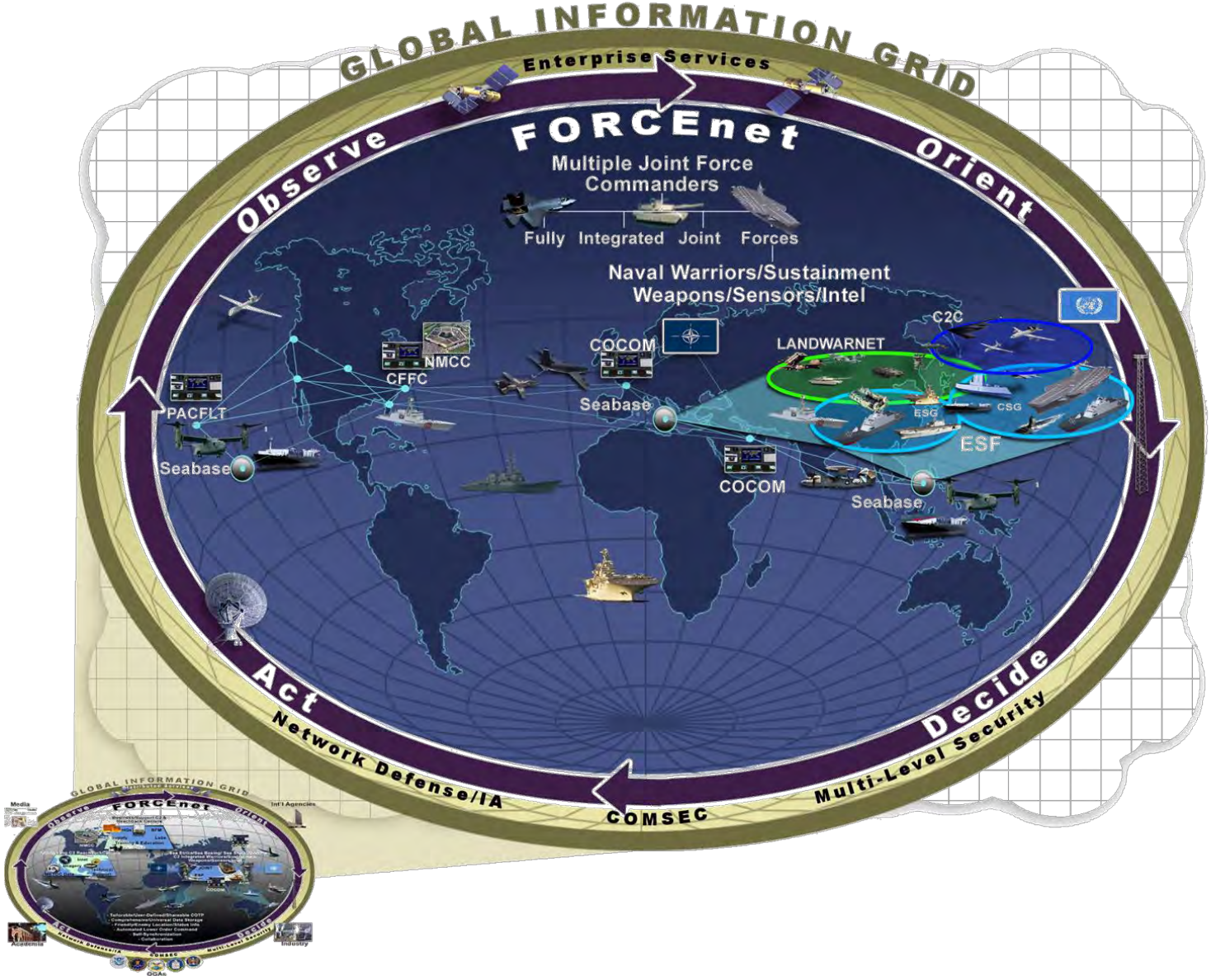


Blue Forces Begin Engagement

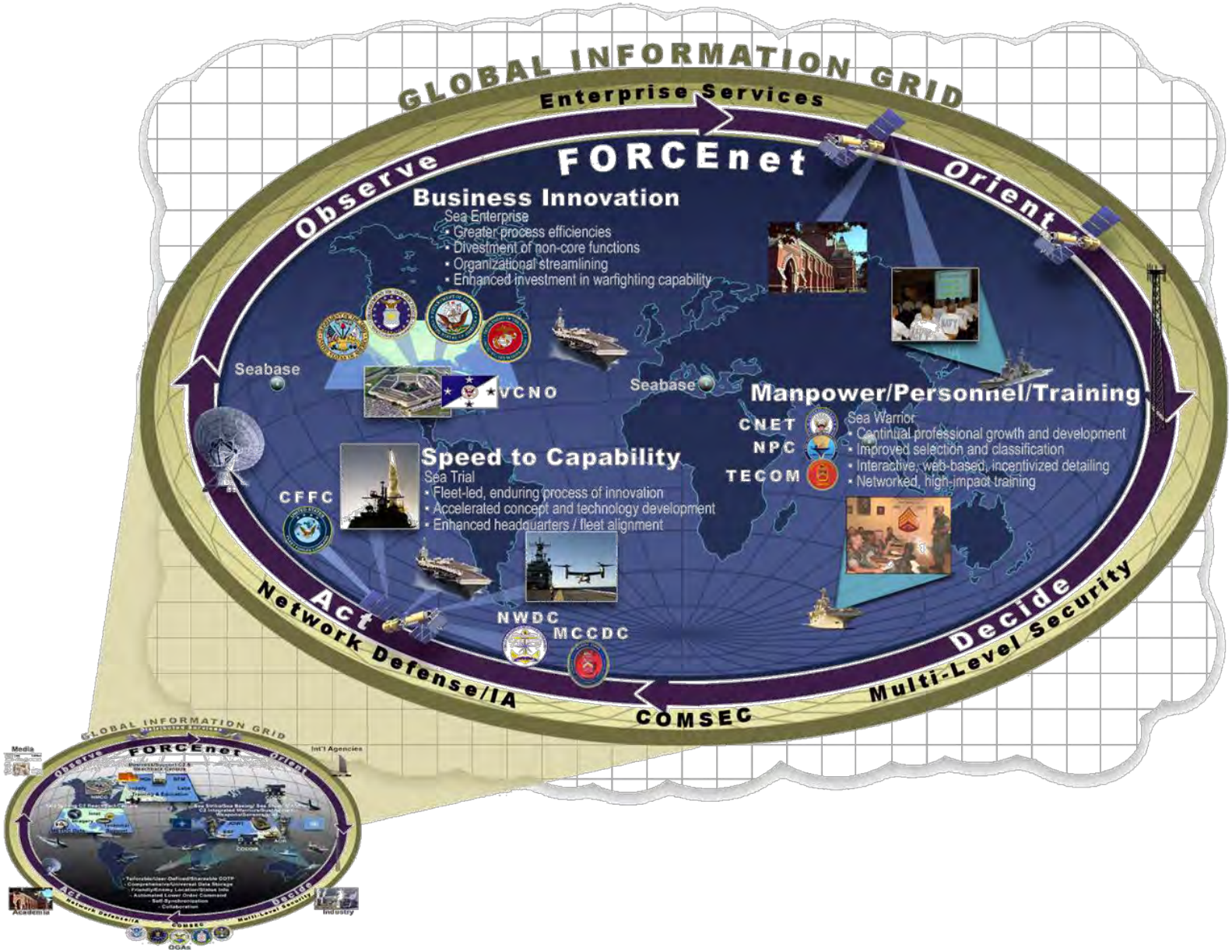
FORCEnet High-Level Concept Graphic



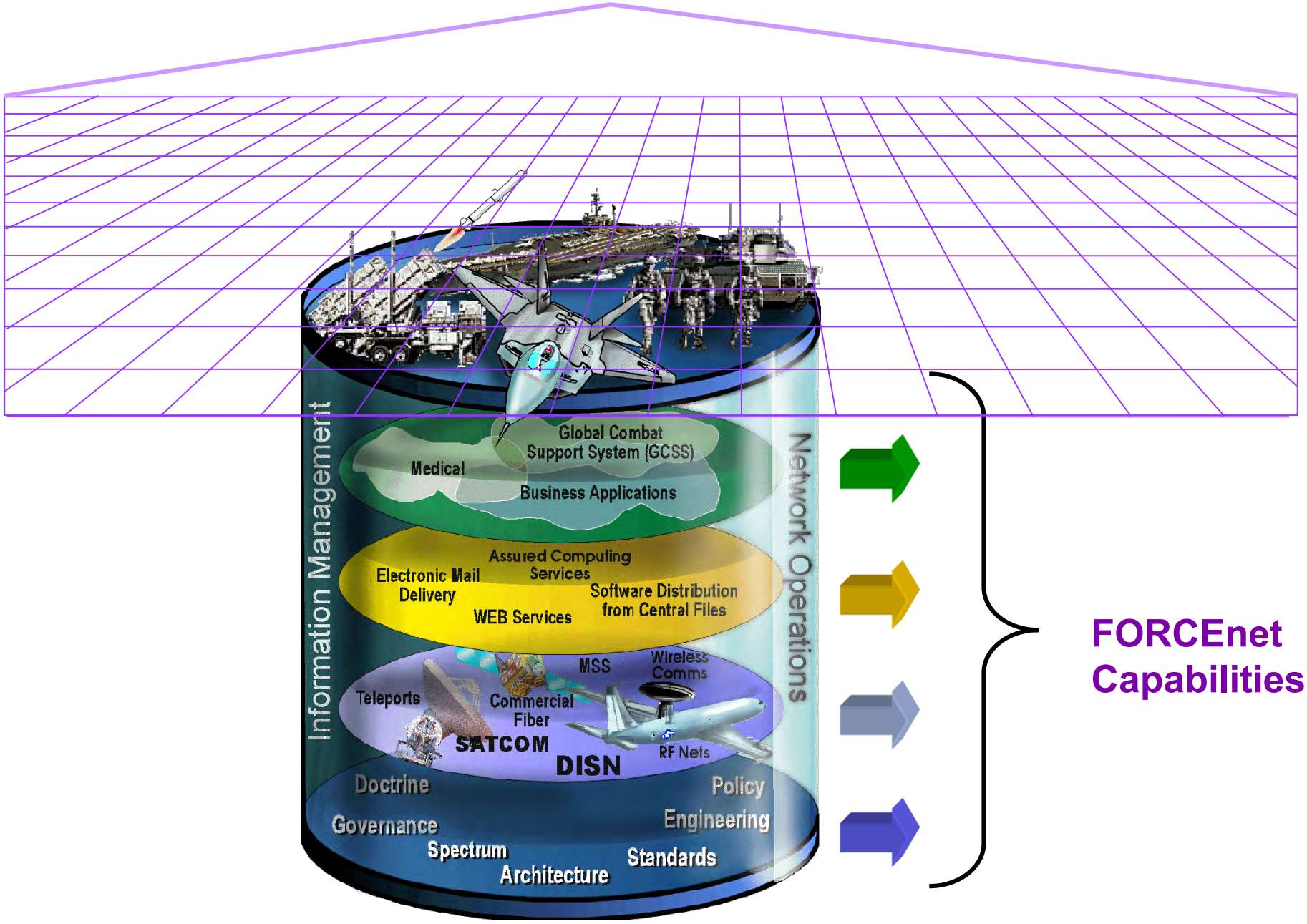
FORCEnet Warfighting Domain OV-1



FORCEnet Business Support Mission Domain OV-1



FORCEnet nets the full Spectrum from Strategic to Tactical





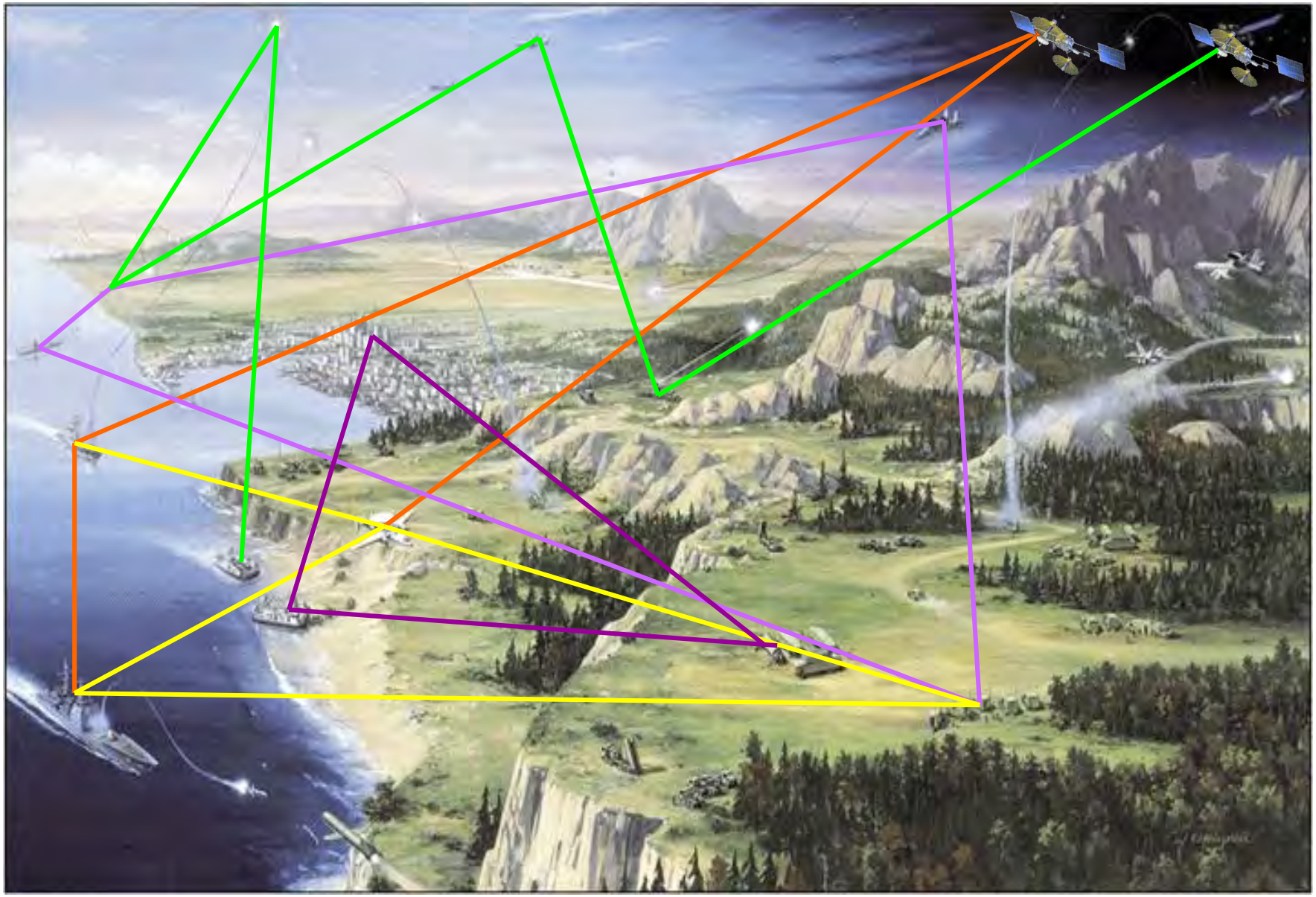


Networked Naval
Command and Control

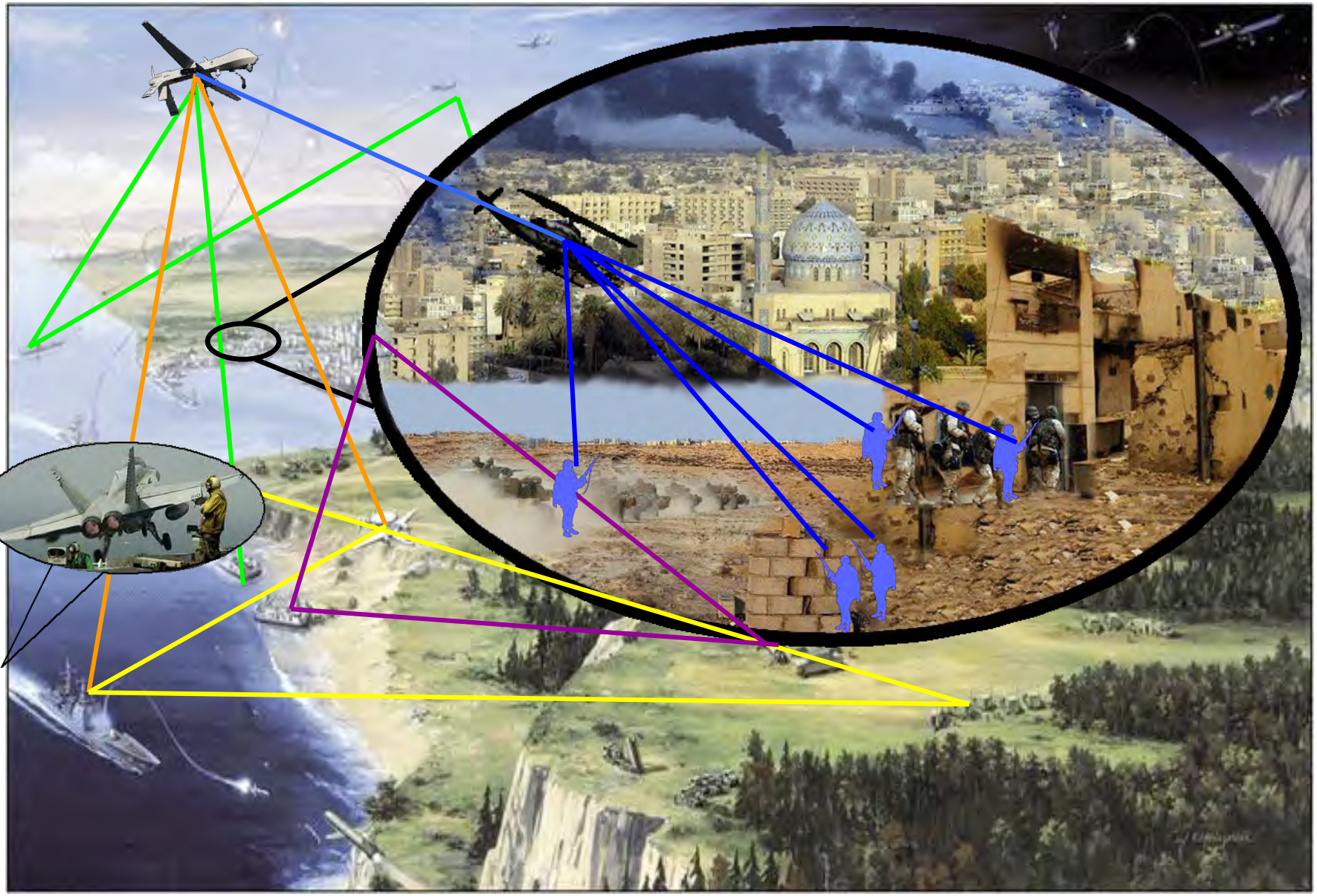


FORCEnet Capabilities

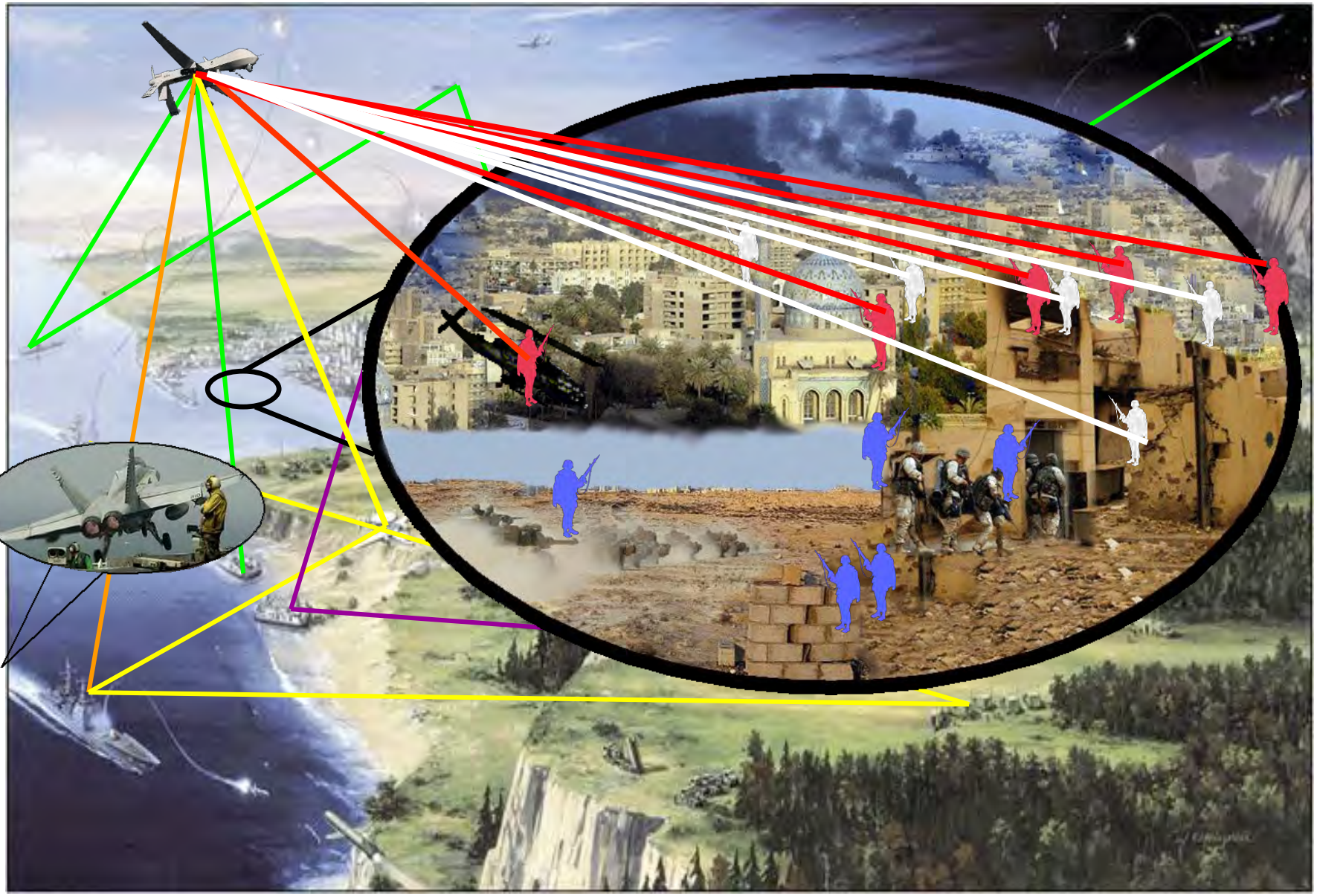
Capability 1: Robust, reliable communication to all nodes.



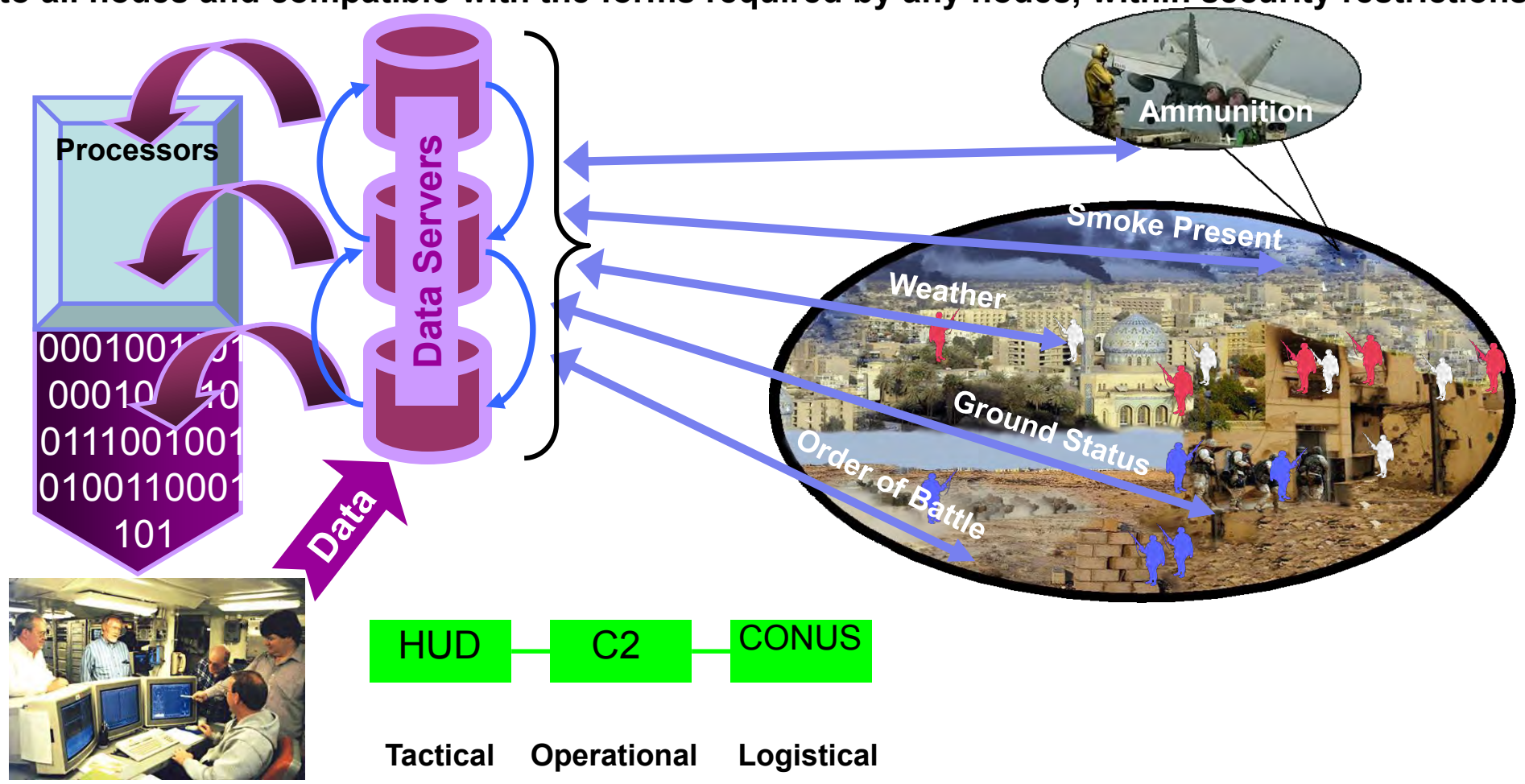
Capability 2: Reliable, accurate, and timely location, identity and status on all friendly forces, units, activities and entities/individuals.



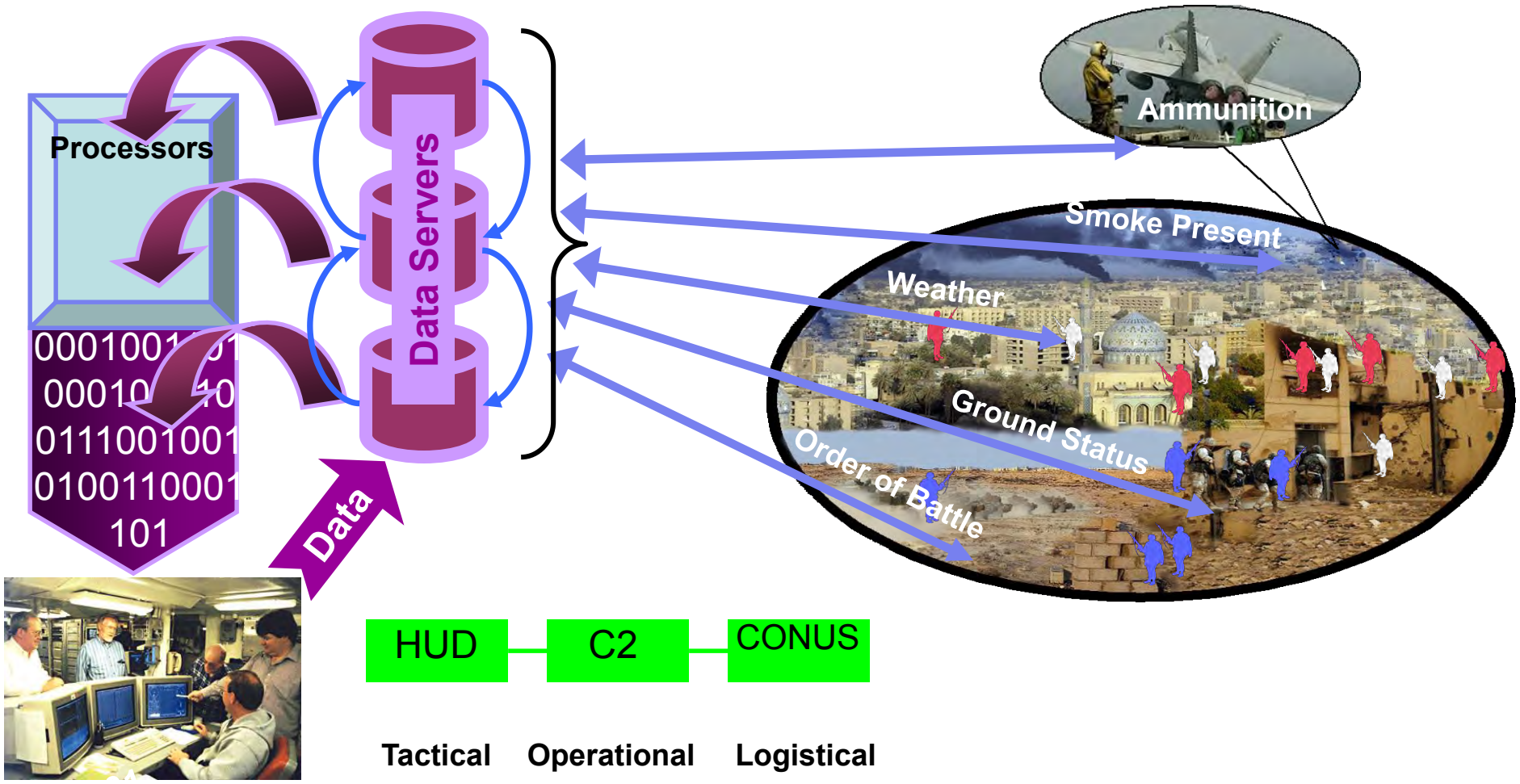
Capability 3: Reliable, accurate and timely location, identification, tracking and engagement information on environmental, neutral and hostile elements, activities, events, sites, platforms, and individuals.



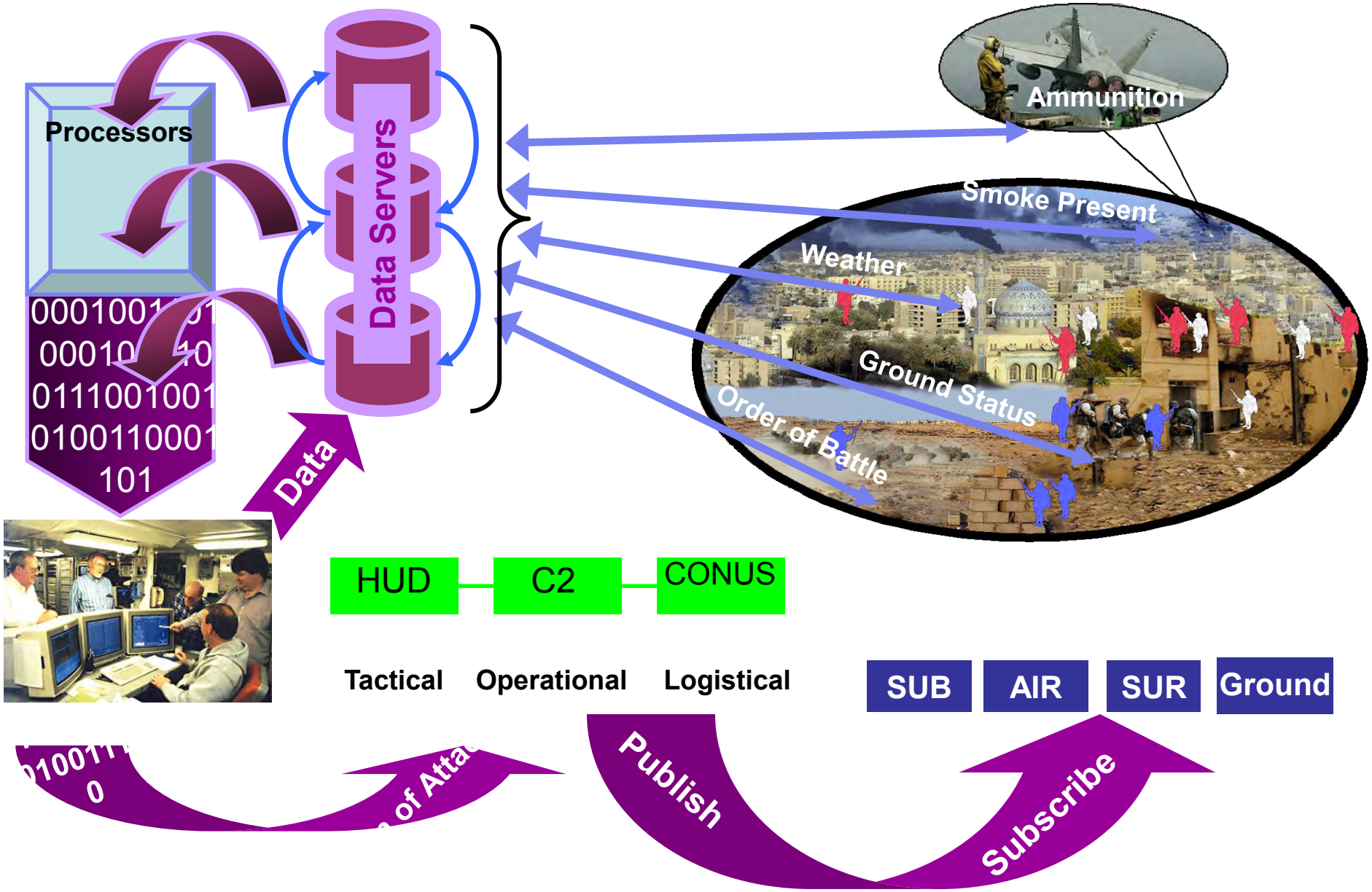
Capability 4: Store, catalogue and retrieve all information produced by any node on the network in a comprehensive, standard repository so that the information is readily accessible to all nodes and compatible with the forms required by any nodes, within security restrictions.



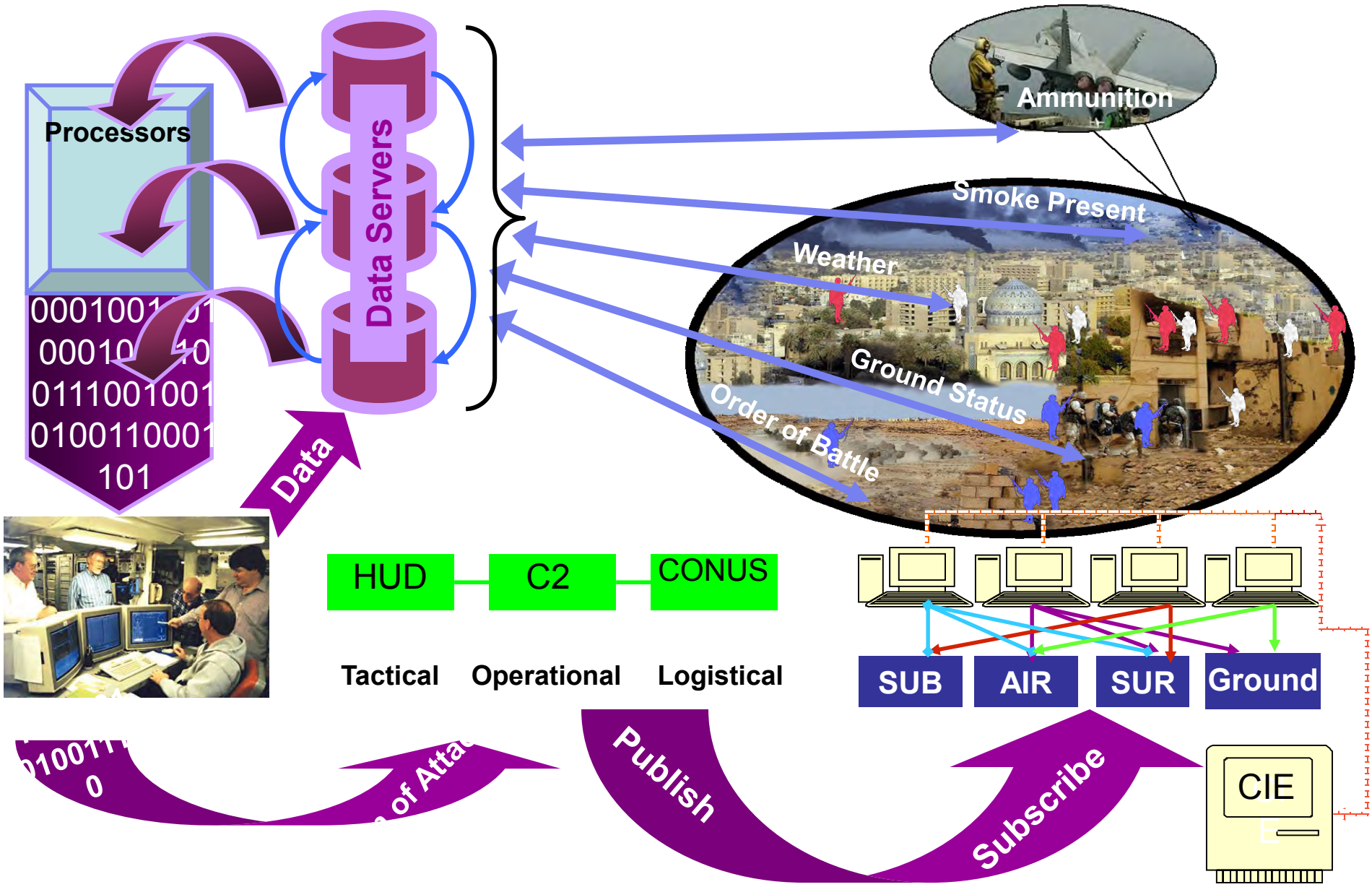
Capability 5: Process, sort, analyze, evaluate, and synthesize large amounts of disparate information while still providing direct access to raw data as required.



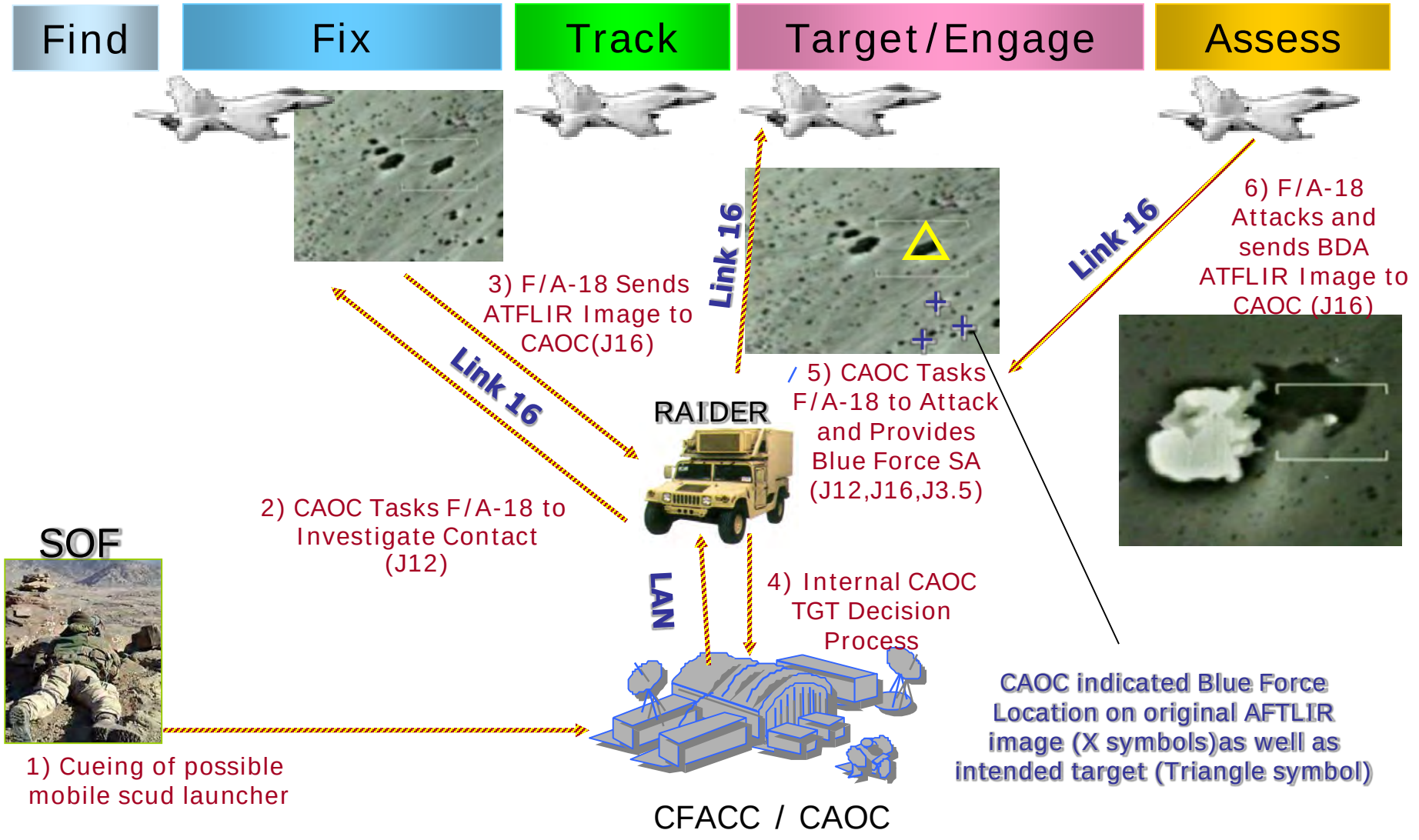
Capability 6: Allow each decision maker to depict situational information in a tailorable, user-defined, shareable, primarily visual representation.



Capability 7: Allow distributed groups of decision makers to cooperate in the performance of common command and control activities by means of a collaborative work environment.

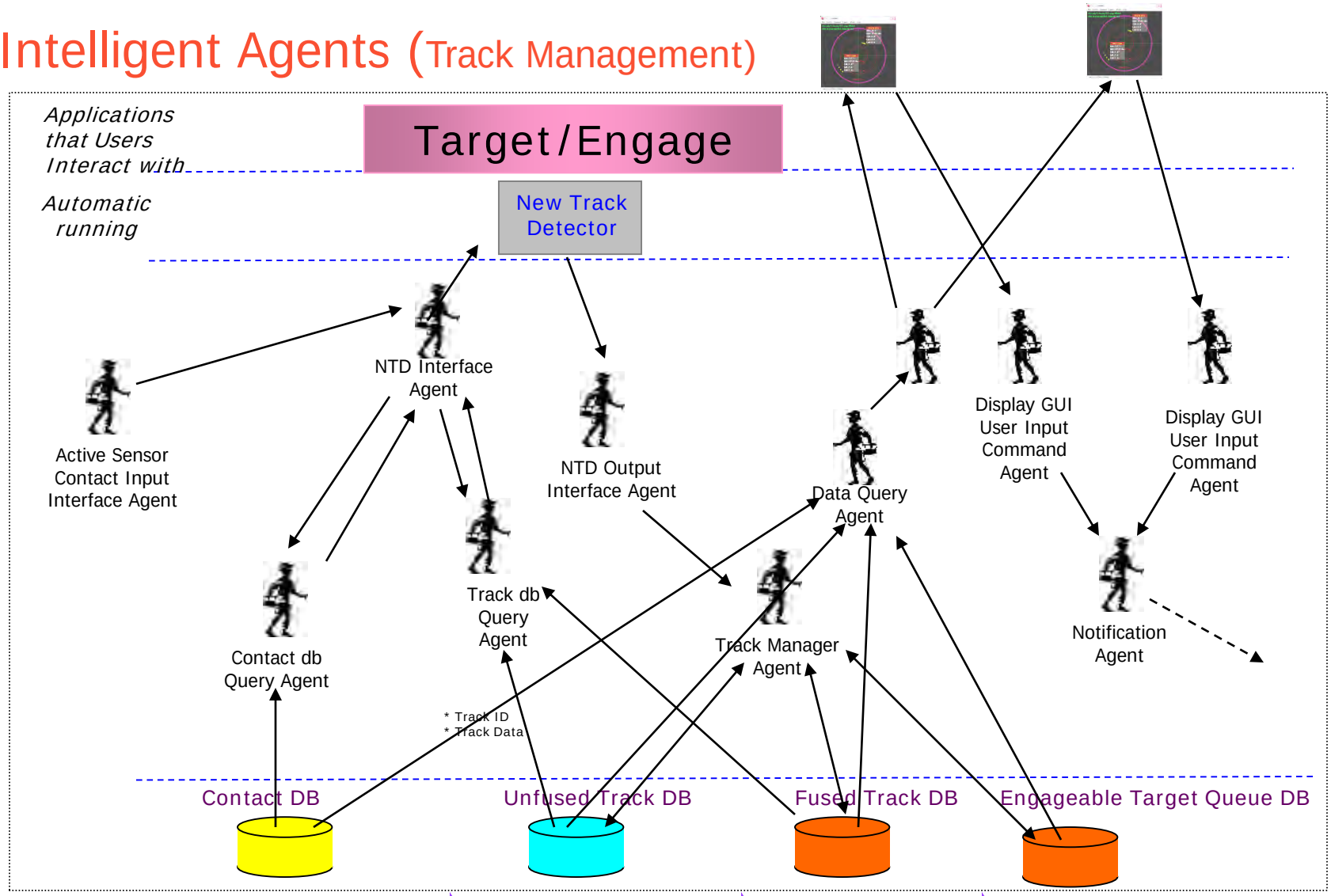


Capability 8: Automate lower-order command and control sub-processes and use intelligent agents and automated decision aids to assist people in performing higher-order sub-processes, such as gaining situational awareness and devising concepts of operations.



Capability 8: Automate lower-order command and control sub-processes and to use intelligent agents and automated decision aids to assist people in performing higher-order sub-processes, such as gaining situational awareness and devising concepts of operations.

Intelligent Agents (Track Management)



Capability 8: Automate lower-order command and control sub-processes and to use intelligent agents and automated decision aids to assist people in performing higher-order sub-processes, such as gaining situational awareness and devising concepts of operations.

(Mission Execution)



Capability 9: Provide information assurance.



Hacker

INFORMATION ASSURANCE







SECURE

Assured Content

Assured Delivery



Capability 10: The ability to function in multiple security domains and multiple security levels within a domain, and to manage access dynamically.



Hacker

INFORMATION ASSURANCE





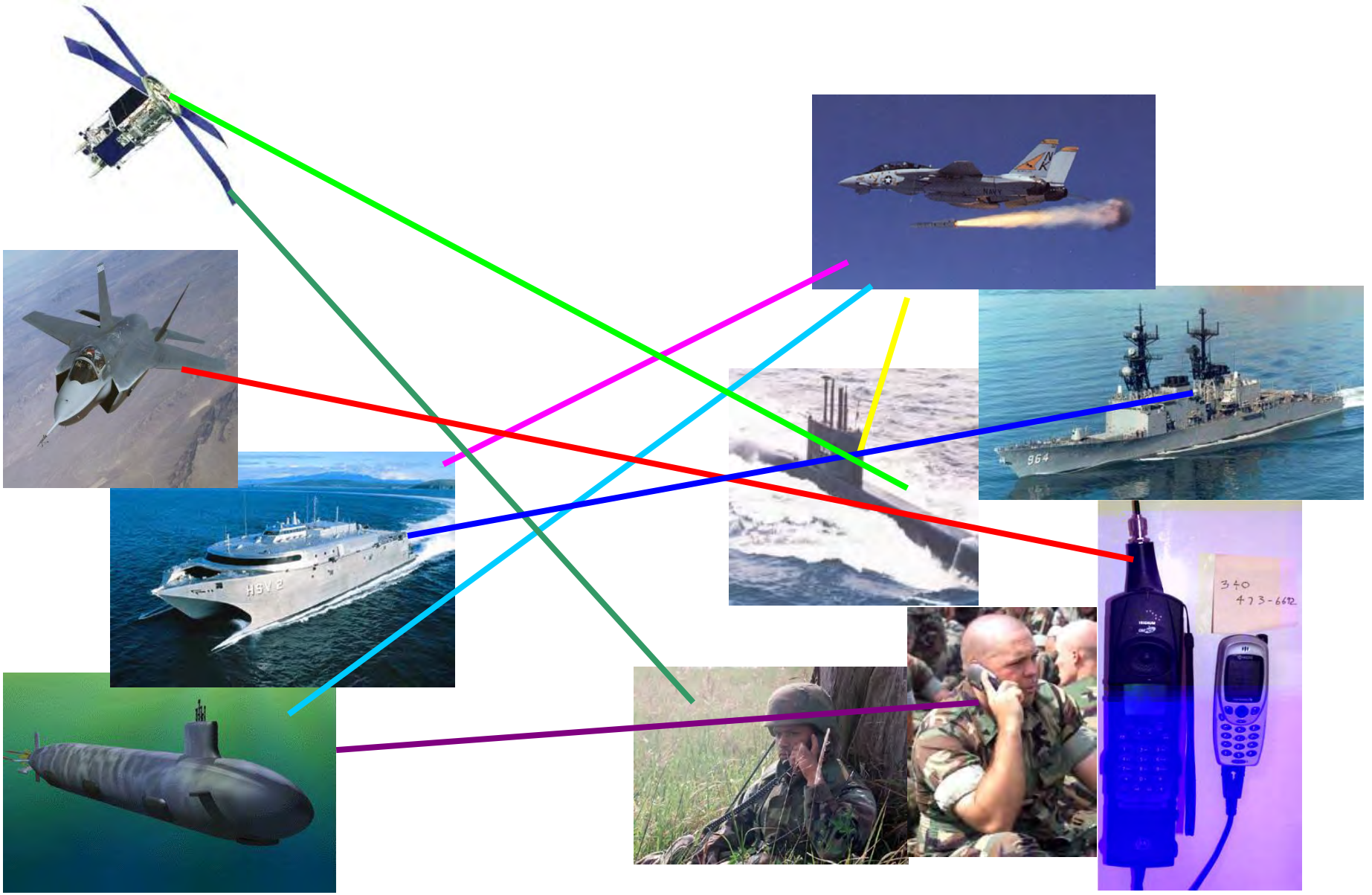








Capability 11: The ability to interoperate with command and control systems of very different type and level of sophistication.

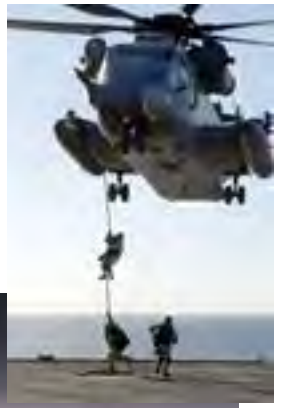


Capability 12: Allow individual nodes to function while temporarily disconnected from the network.



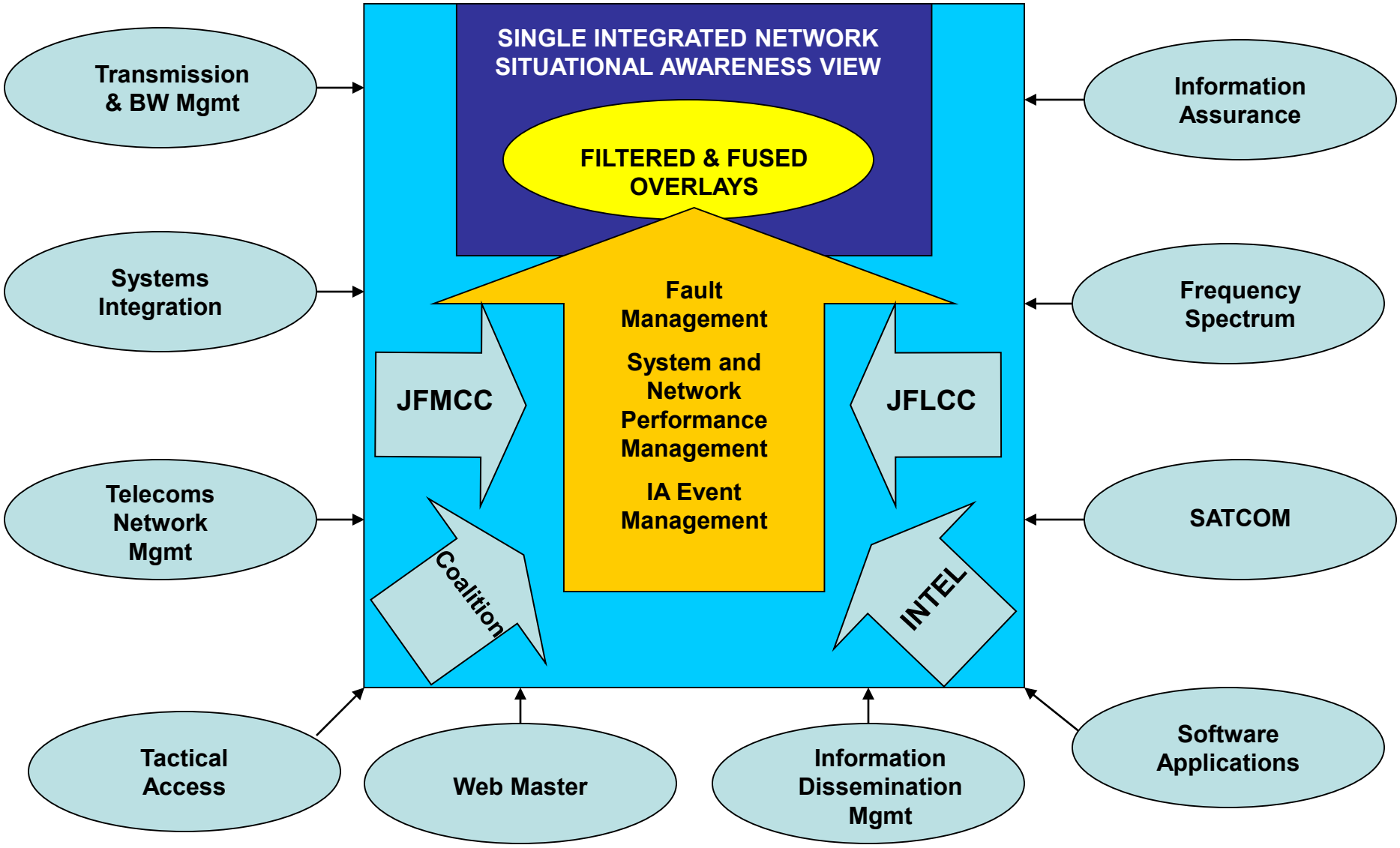
Sub is disconnected until able to get a Mission Data Update



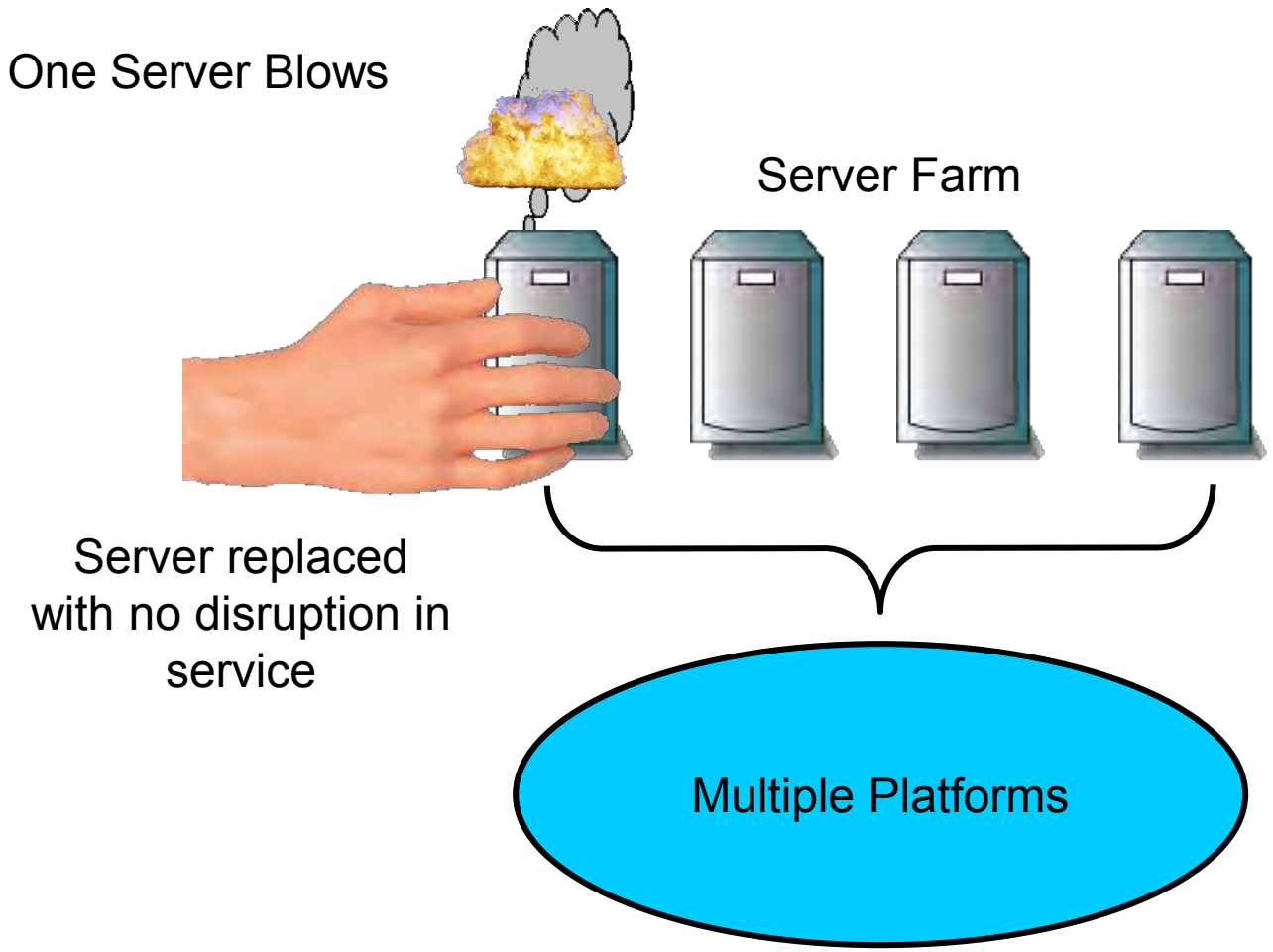




Capability 13: Automatically and adaptively monitor and manage the functioning of the command and control system to ensure effective and efficient operation and to diagnose problems and make repairs as needed.



Capability 14: The ability to incorporate new capabilities into the system quickly without causing undue disruption to the performance of the system.



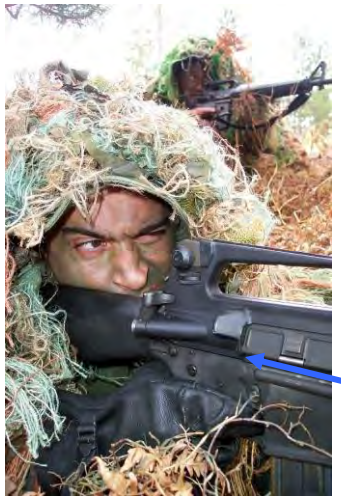
Capability 15: Ultimately, make and implement good decisions quickly under conditions of uncertainty, friction, time pressure and other stresses.

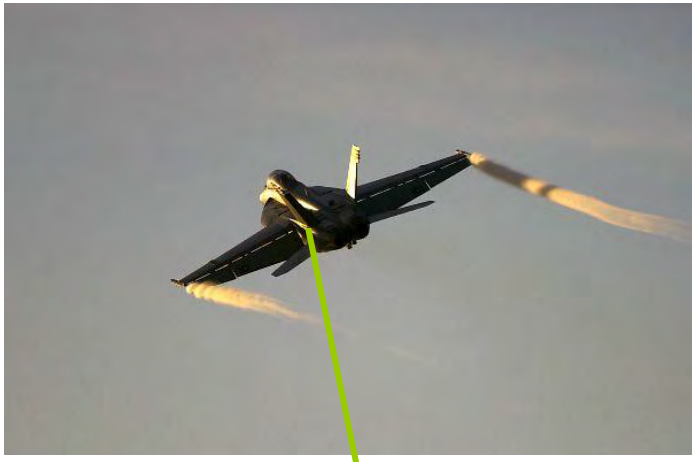




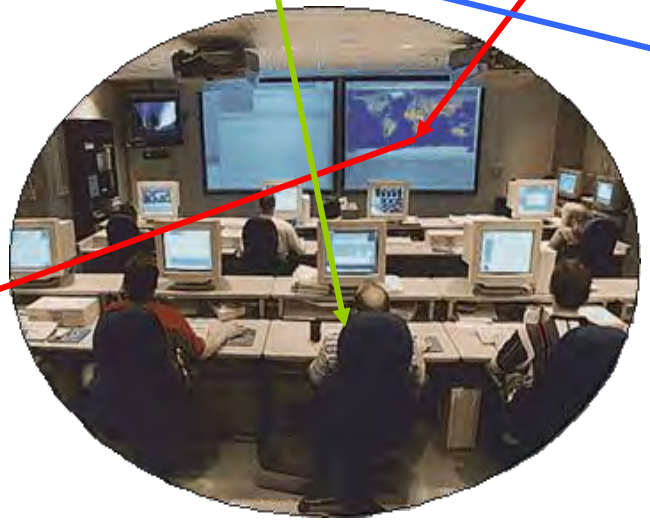


Capability 15: Ultimately, the ability to make and implement good decisions quickly under conditions of uncertainty, friction, time pressure and other stresses.













Capability 15: Ultimately, the ability to make and implement good decisions quickly under conditions of uncertainty, friction, time pressure and other stresses.











The Way Ahead

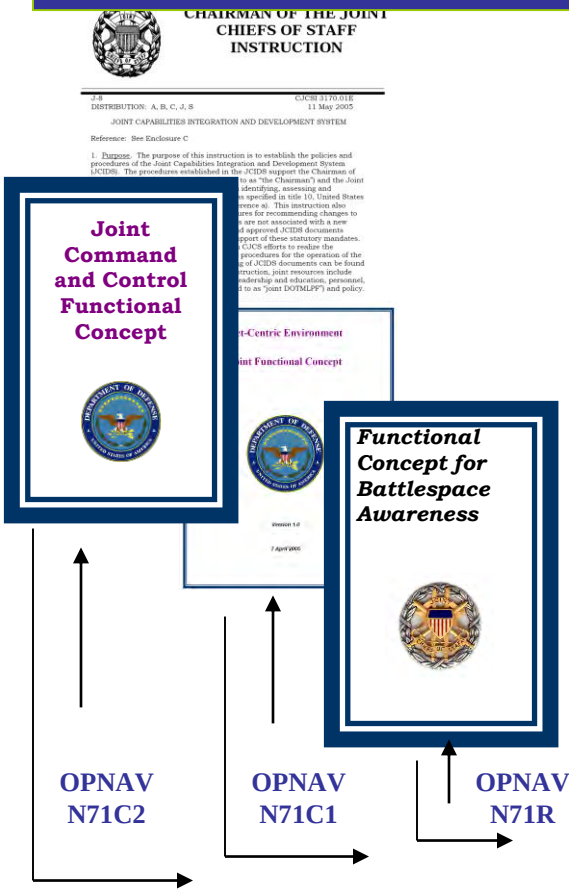
- FORCEnet Capability "decomposition"

- FORCEnet Capability List (FCL)

- FORCEnet CBA for the Globally-connected JFMCCs and Navy Maritime Organizations

Alignment of FORCEnet Capabilities with JCIDS and NCDP

Joint Capabilities Integration and Development System

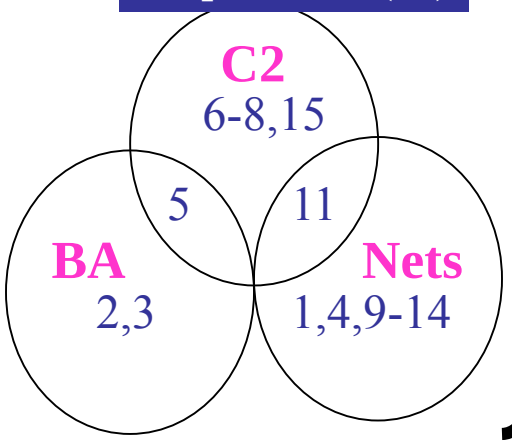


Joint Functional Concepts
~ 120 Tasks

FORCEnet Functional Concept



FORCEnet Capabilities (15)



Naval Capabilities Development Process

COTP MCP

Nets MCP

ISR MCP

~ 45 Tasks

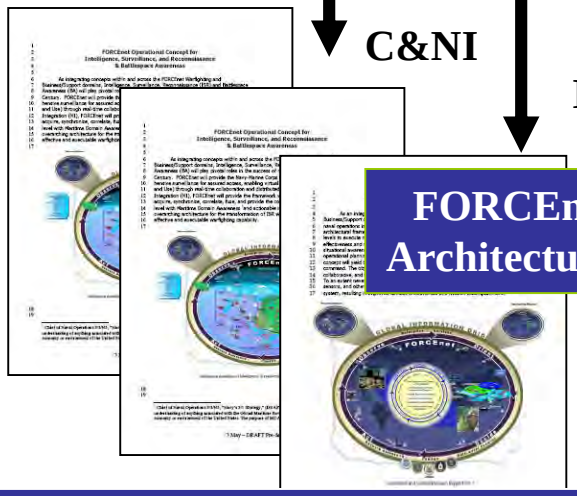
~ 55 Tasks

~ 30 Tasks

C2/DS

C&NI

BA/ISR



FORCEnet Architectures

Using Joint tasks and attributes to inform FORCEnet Capabilities decomposition

Fn5. Process, sort, analyze, evaluate, and synthesize large amounts of disparate information while still providing direct access to raw data as required.

Once information has been made available in a shared space, it must be examined and processed to make it more valuable to decision makers. This information management generally should occur as a service provided on the network. Information carries a ce

Information management systems should be flexible in the sense that they allow the manipulation of information in a variety of different ways and combinations. All information should be sortable by any number of categories, including time, type and sour

FORCEnet Capability	Associated MCP	Major Tasks	Attributes	Example Measures
Fn5. Process, sort, analyze, evaluate, and synthesize large amounts of disparate information while still providing direct access to raw data as required.	**ISR/Nets**	5.1. Ensure access to source data before and after any processing.	Accessible	Percent of information that is linked to its source data.
		5.2. Process source data into information.	Assured	*Percent* of data that is correctly processed.
			Capable	*Number* of systems information that can be processed.
			Effective	*Percent* of data that is processed.
			Flexible	*Number* of different systems information that can be processed, by information type.
				Number of information system types.
			Timely	*Seconds/minutes/hours* to process data (from receipt).
			Usable	Subjective determination of *usability* of information after processing (fully, marginal, unusable).
				Number of requests for clarification of information, by information type.
		5.3. Sort information (refers to arranging information according to categories or classes of metadata—e.g., by source, time, subject, etc.).	Assured	*Number* of instances of information placed in wrong category.
			Capable	*Number* of types of information that can be sorted.
			Effective	*Percent* of data that is sorted.
			Flexible	*Number* of information types that can be sorted from different systems, by information type and system.
			Timely	*Seconds/minutes/hours* to translate data (from receipt of request).
			Usable	Subjective determination of *usability* of information after sorting (fully, marginal, unusable).
				Number of errors generated during translation.
		5.4. Correlate information (refers to the sequencing of multiple inputs on the same object).	Assured	*Number* of instances of losing information pedigree after correlation.
				Percent of instances correlated tracks preserve original ID.
			Capable	*Number* of types of information/tracks that can be correlated.
			Effective	Subjective determination of *value* of correlated information (high, medium, low).
			Flexible	*Number* of different presentations that can be accomplished with correlated information.
			Timely	*Seconds/minutes/hours* to correlate information.
			Usable	Subjective determination of *usability* of correlated information (fully, marginal, unusable).
				Number of errors generated during correlation.

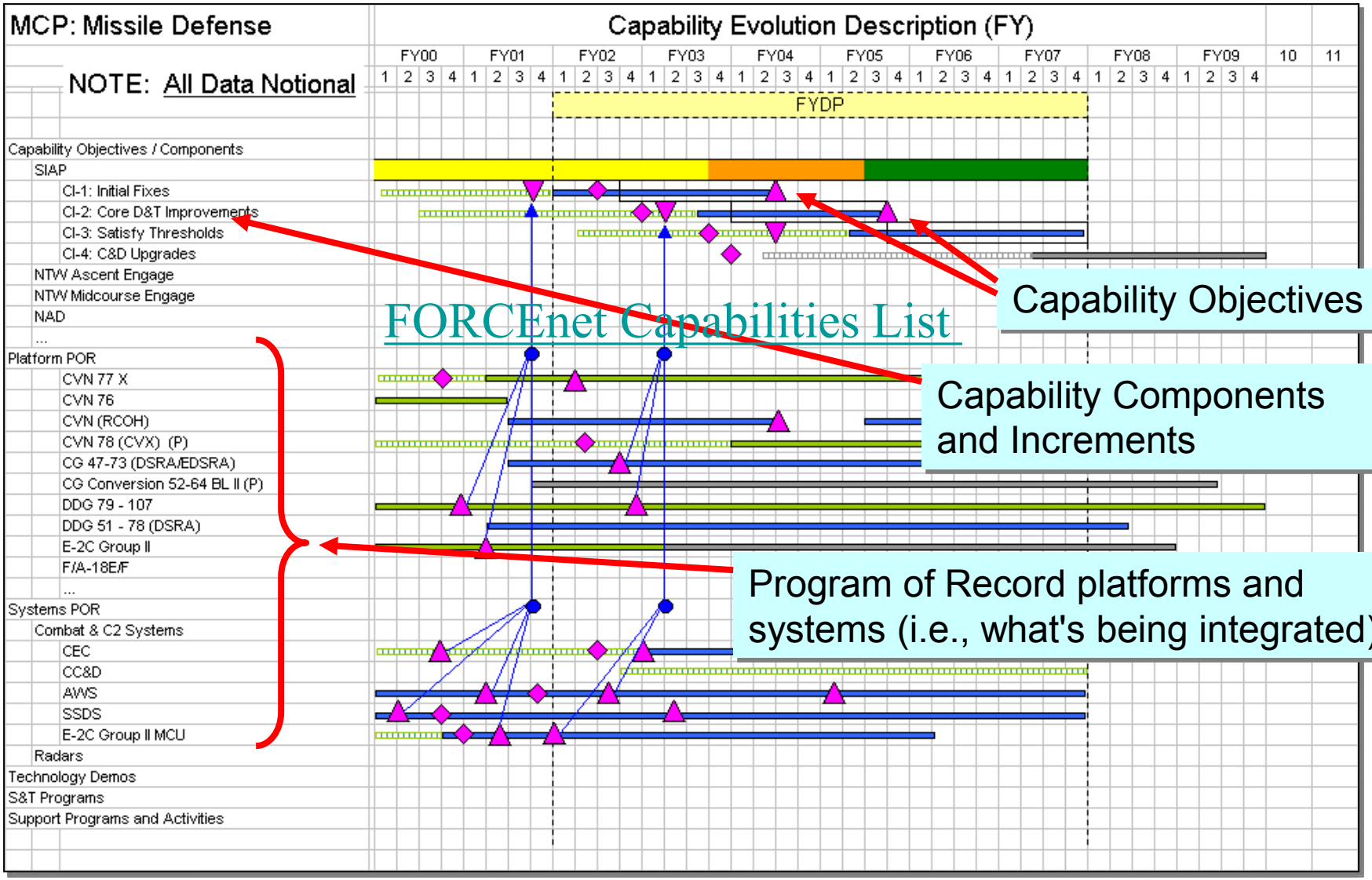
FORCEnet Capabilities List

1. Command and Control - continued

Capability Enhancements	Parameter	Near (2003 – 2009)[154]	Mid (2010 – 2014)[155]	Far (2015 +)[156]
Joint and Multinational Enabling	(5) MAGTF C2	1 Provide MAGTF C2 systems to support decision-making. Address integration, interoperability, TTPs and training to create conditions for fielding systems capable of integrating into the GIG, and sharing user and network data with other GIG systems -- all capable of remote monitoring and management.[157] 2 Provide MAGTF CTP and information management.[158] 3 Institute Information Managers TTP and curriculum.[159] 4 Develop on-the-move digital COCs with internet protocols in support of STOM.[160]	1 Develop Intuitive Collaborative decision making tools.[161] 2 Provide trained Information Managers to the Battalion/Squadron level.[162] 3 Provide a MAGTF C2 system that will support long-distance collaboration and operations in a distributed manner, including reach-back to garrison-based resources, in any environment, whether sea-based, transitioning ashore, or on the move.[163]	1. Robust, reliable communication to all nodes 2. Reliable, accurate and timely Blue Force location and status 3. Reliable, accurate and timely red, white and gray force location, identification, tracking and engagement 4. Storage, cataloging and retrieval of all information
		5 MAGTF C2 will provide an essential OMFTS enabler, requiring a single operational and technical system, which incorporates ground, aviation, combat service support, and command element components.[164]	4 Field systems capable of integrating into the GIG and capable of sharing user and network data with other GIG systems – all capable of remote monitoring and management.[165]	
		Advocate Lead: CE (C2I)	Support: CE (C4), ACE	Capability Type: Marine Corps
e. Collaborative Planning				
Joint and Multinational Enabling (Tactical Flexibility)	(1) Collaborative Planning	1 The ability of distributed groups of decision makers to cooperate in the performance of common command and control activities by means of a collaborative work environment.[166] 2 Shape Joint C4 and ISR architecture to meet USMC Information Exchange Requirements (IERs).[167] 3 Develop expeditionary modeling and simulation rehearsal system for use in joint environment.[168] 4 Develop joint standardized collaborative tools and TTPs to support Marine requirements.[169]	1 Provide the ability to conduct collaborative preparation, planning, and virtual rehearsal while underway -- by airlift and sealift -- in order to conduct at sea arrival and assembly of a maritime prepositioning force reinforcing an expeditionary strike force.[170]	5. Information processing, sorting, analysis, evaluation, and synthesis 6. Means to depict situational information in a tailorable, user-defined, shareable representation

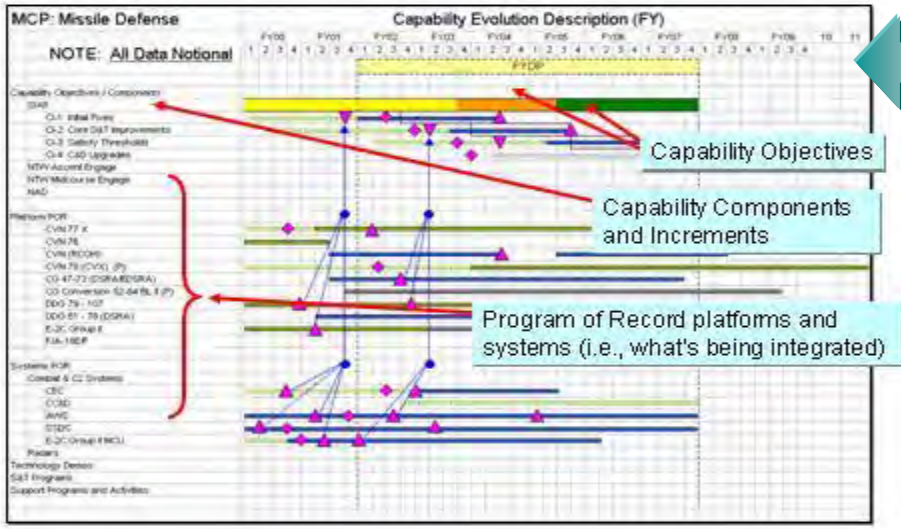
Existing capability Marginal capability No capability

The Capability Evolution Description

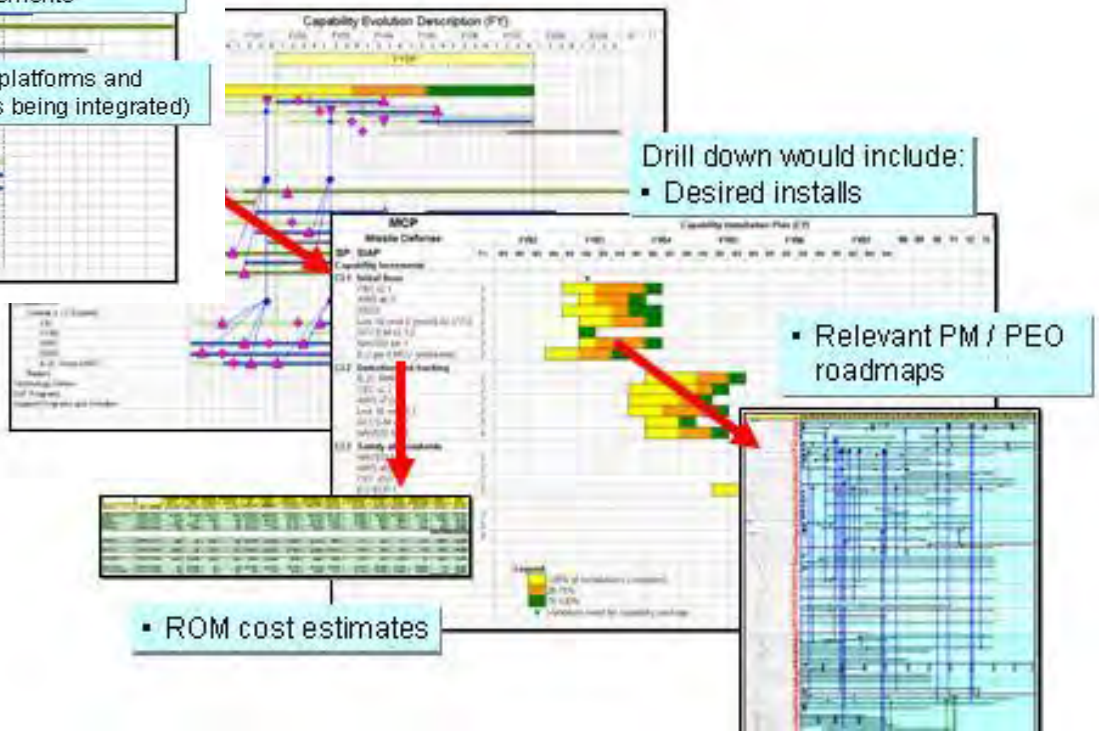


FORCEnet Capability Evolution

The Capability Evolution Description

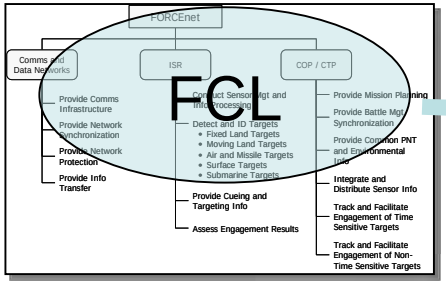


FCL is the Advocate's Authoritative Source Document for Priority, Phasing, and Pacing of Capability Evolution
(CED Top Lines)

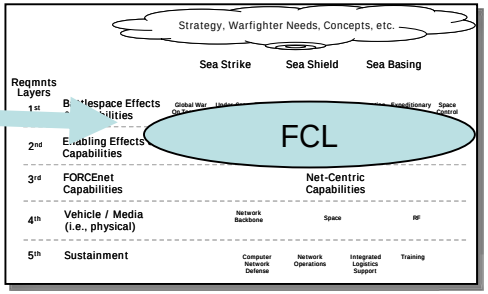


How FCL will be Used

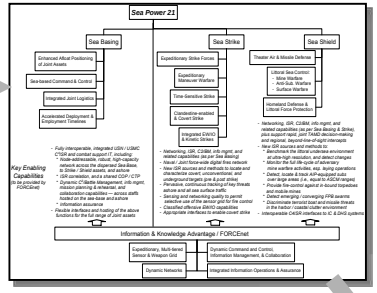
1. Refine the FCL



2. Catalog the WF needs

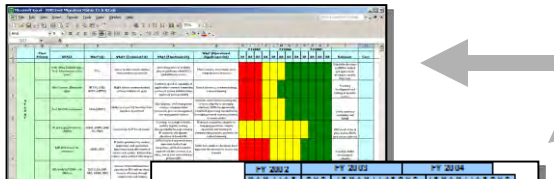


3. Derive the Fn capability attributes implied by the needs

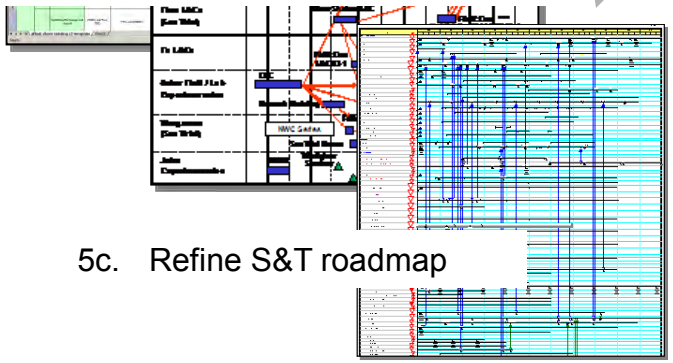


4. Mat'l or Non-Mat'l?

5a. Joint SYSCOM effort to propose / assess near / longer term material solutions

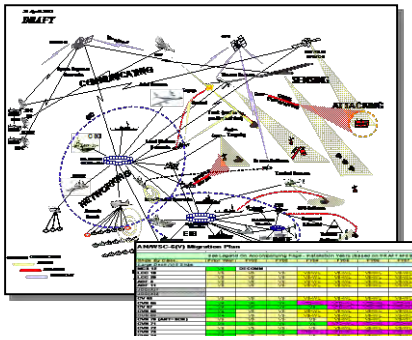


5b. Refine Fn innovation continuum

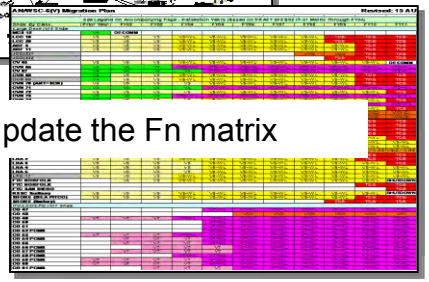


5c. Refine S&T roadmap

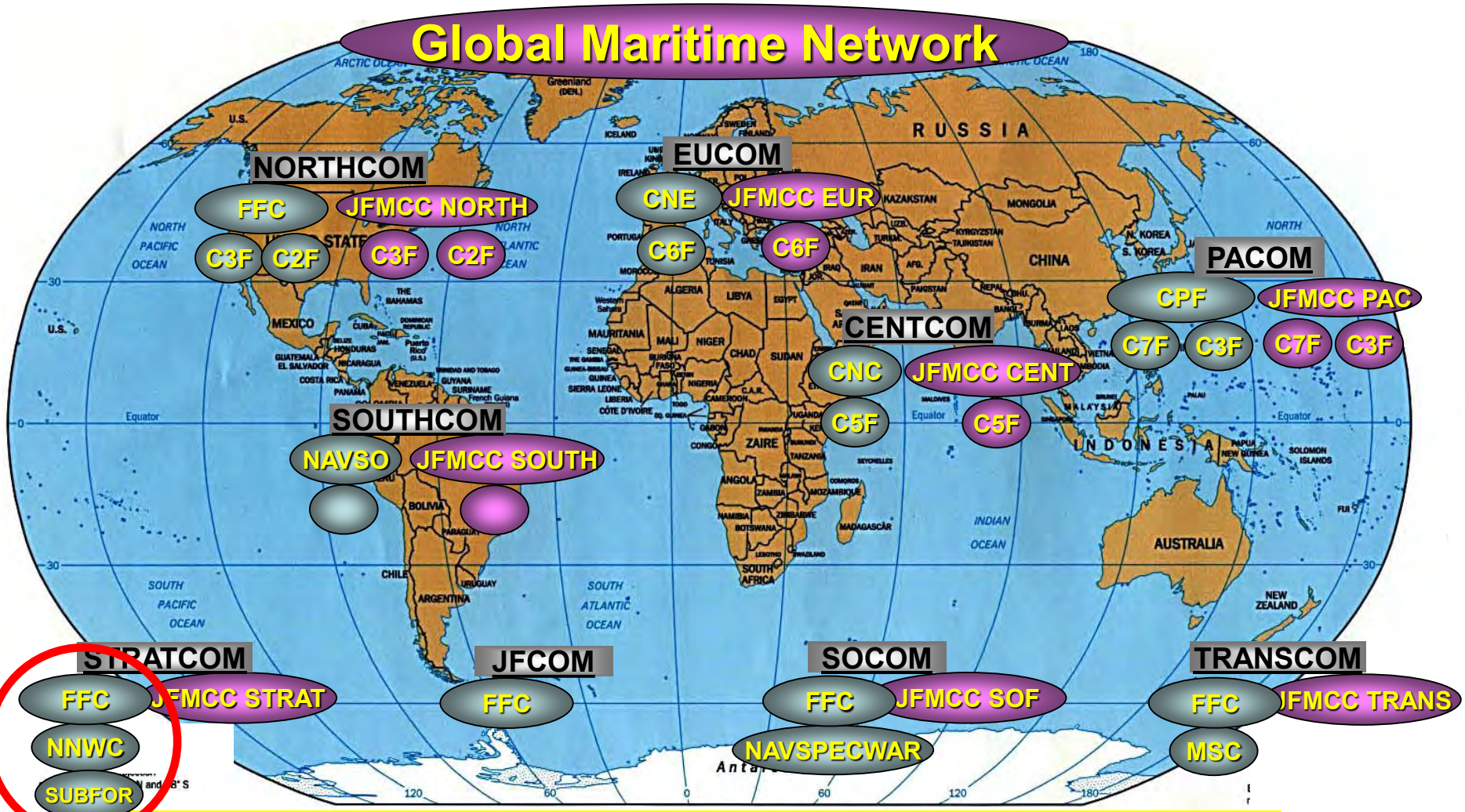
6a. Update the Fn architecture



6b. Update the Fn matrix



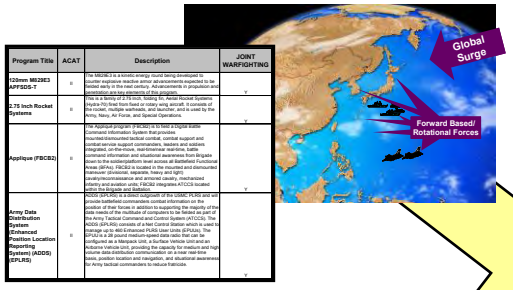
Globally-Networked Maritime Organizations



FORCEnet Capability Based Analysis (CBA)
Globally-networked JFMCCs/Maritime Organization

- Strategic context
- Persistent and enduring challenges
- Security objectives
- Assumptions

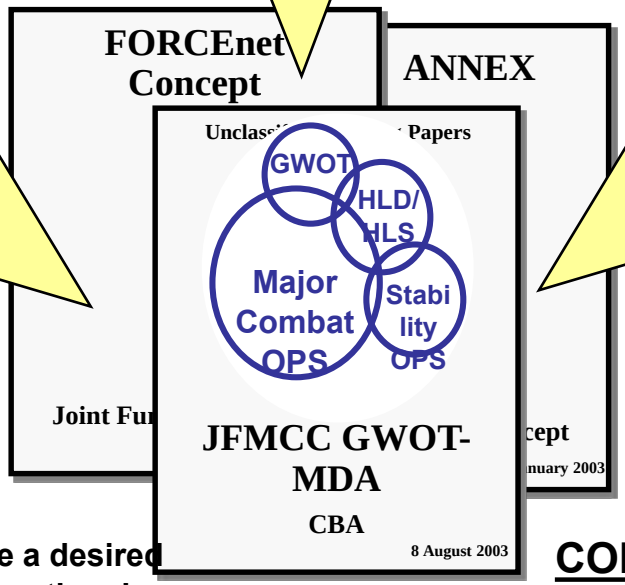
POM 08 GWOT Scenario



- Force structure
- Operational context
- Red forces / blue forces

GWOT and MDA CONOPS O-Plans

- Time-phased force deployment
- Time-phased objectives



CAPABILITIES: the potential to achieve a desired battlespace effect that contributes to an operational objective in an uncertain environment through the execution of supporting tasks

CONOPS: how a Joint Force Maritime Commander integrates functional means to achieve operational ends

Fundamental tasks, conditions and standards, capability gaps and DOTMLP_F alternatives to fill the gaps for how a Joint Force Maritime Commander will integrate capabilities to generate effects and achieve an objective in a GWOT / MDA environment

Questions?



Combating Terrorism with Technology

Mr. Roger Smith
DASN (LMW)

27 Oct 2005

Responsibility

SECNAV 2005 Objectives (Objective 1d)

"Establish a Naval Innovation Laboratory environment to enable rapid acquisition and development processes for evaluating, testing and deploying of GWOT solutions. Countering IEDs, RPGs and mortars is the principal focus of this effort in 2005."

Rapid Solutions

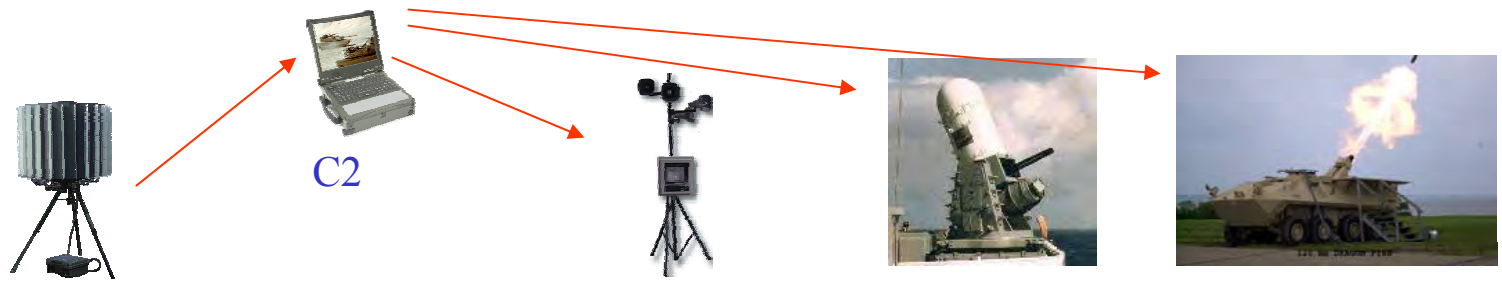
- **Naval Innovation Laboratory (NaIL)**
  - Dahlgren, Homeland & Force Protection PAD
  - New channel for prototypes to meet urgent Naval needs
    - Warfare Centers, NRL pre-aligned for rapid teaming with industry
  - Compliments OSD and Joint programs (JRAC, IED TF, et al)
  - Key Elements
    - Approvals w/in 30 days – ***work starts immediately***
    - Budget for "Quick Starts" ($11.2M FY07 RDT&E funds)
      - $10M -$15M objective (POM08 issue)
      - Project completion with reprogramming actions
    - Fielded prototypes 180 - 360 days
    - Led by sub-group of existing Technology Oversight Group (TOG)
      - N6/7, CG MCCDC, FFC, DASN(RDT&E), CNR, N8, HQMC P&R

SBIR Countermeasures Efforts

- An additional $5M was allocated by ONR to accelerate 50 Phase I SBIR awards for Counter-fire, Counter-IED, and Counter-RPG technologies
  - IED Technology Phase I Awards:
    - UAV & Ground Vehicle Electromagnetic Sensor System, to protect convoys
    - Road Side X-Ray
    - Optical Change Detection System w/fluorescent markings
    - Flash Ladar Sensor
    - CMOS-MEMs Focal Plane Array for IR
    - Detection of trace Chemicals
    - Sensors w/small Robotic Vehicles
    - Optical change Detection System integrated to Human vision
    - HMTD & TATP Detection w/Surface Acoustic Wave Array
    - Vacuum Rapid Collection & Analysis of Particulate Samples
    - Low Cost Explosive Vapor micro System Detection System

Current Solutions

- **Counter-Rocket, Artillery & Mortars (C-RAM)**
  - Initial FOB established and two CWIS Block IB Systems fully integrated, four guns being built to complete FOB rqmt.
  - $75M supplemental provided for the C-RAM sense & warn capability at 8 FOBs. Marines have the first two FOB priorities for C-RAM.
  - Marines executing $8.9M of ASN (RDA) 1% funds to:
    - Develop Expeditionary Capability
    - Integrate/test proposed subsystems (e.g. HALO & Dragonfire)



Joint Rapid Acquisition Success



- **Electronic Counter Measures**
  - Low Cost Jammer
    - SECDEF designated the Secretary of Army to execute the rapid acquisition and deployment of this system (Authority: Sec. 811, FY05 NDAA).
    - Army directed NAVEODTECHDIV to execute a procurement contract for 10,000 units ($10M included in the FY 05 Supplemental).
      - First contract was awarded to ITT industries for 2,000 units. Deliveries underway into theater.
      - Second contract was awarded to Tyco Industries (MA-COM) for 4,500 units with an additional 3,500 as follow-on option.

Operation Respond

- Established in Feb 2004
- Department of the Navy's Naval Innovation Lab and Senior Process Action Team to rapidly acquire and equip our Marines and Sailors for current wartime operations
- Department of the Navy coordinator for rapidly developing and fielding technologies for deployed warfighters

Operation Respond (Cont)

- In excess of $520 million ($370M USMC funds and $143M Navy funds) has been reprogrammed to support over 120 war fighting requirements which include:
  - Vehicle and Individual Armor Protection.
  - Improvised Explosive Device Countermeasures.
  - Development and procurement of Intelligence, Surveillance, and Reconnaissance.
  - Unmanned aerial and ground vehicles.

USMC Armor Upgrades

Vehicle Armor

- Requirement & Funding summary:
  - Requirement for 5,550 HMMWVs, 1,850 MTVRs, & 2,814 M1114s (MNC-I/CJTF-76 is sourcing 542 vehicles)
  - $472.7M programmed for these efforts via FY05 Bridge Supplemental, FY05 Funds transfer from IFF and FY05 Supplemental
  - An additional $105.4M requested via FY06 Supplemental to complete the M1114 and MAS efforts



- Armor Installation **(As of 23 Oct)** :
  - HMMWV (MAK) – 2,070 out of 2,545 kits/vehicles have been installed/delivered. Estimated completion date of Nov 05, one month ahead of schedule.
  - MTVR (MAS) – Installs underway at TQ and Al Jahra (KU). 263 out of 900 kits have been installed. Estimated completion date of May 06, three months earlier than originally planned.
  - M1114 – 240 out of 2,272 delivered. Estimated completion date of May 06.



Processes & Solutions

- **Joint EOD Rapid Response Vehicle (JERRV)**
  - CENTCOM/JIED IPT selected the Cougar vehicle to fulfill a joint requirement for an EOD and Engineer vehicle for blast protection from mine and IED explosions.
  - First two vehicles delivered
  - Requirement for 122 vehicles
    - 38 Marine Corps
    - 84 Army, Navy and Air Force
  - $92M funded from:
    - $67.1M Joint Procurement (IFF)
    - $24.9M Supplemental (Army)
    - Contract awarded 23 Jun 05
  - DEPSECDEF Urgent & Compelling approval allowing sole source to Force Protection, Inc.



Long-Term Solutions

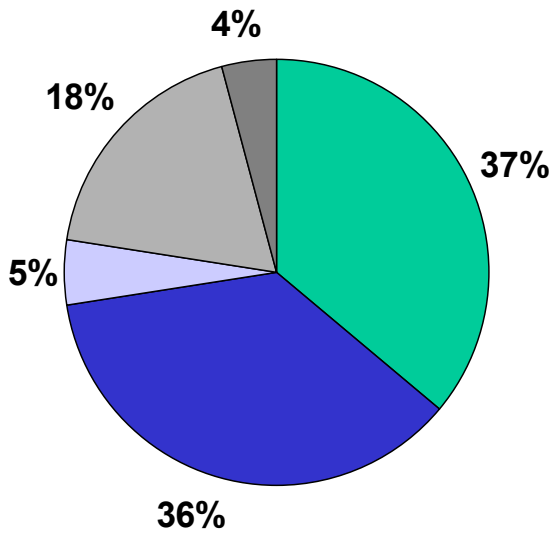
- **Naval "manhattan" Program to Counter-IEDS**
  - Innovative scientific concepts to counter IED threat
  - Develop/maintain long-term investment in multi-disciplinary Basic Research/Phenomenology
  - Complementary to other national efforts, not competitive
  - ~ 450 responses to Broad Agency Announcement (BAA)

- **Naval Research Laboratory**
- **University Affiliated Research Centers (UARCs)**
  - **APL Johns Hopkins University**
  - **ARL Penn State University**
  - **ARL University of Texas**
  - **APL University of Washington**
  - **ARL University of Hawaii (being established)**
- **Full U.S. Academic Community**
- **International Participation**

Intramural Efforts = $15M / Yr

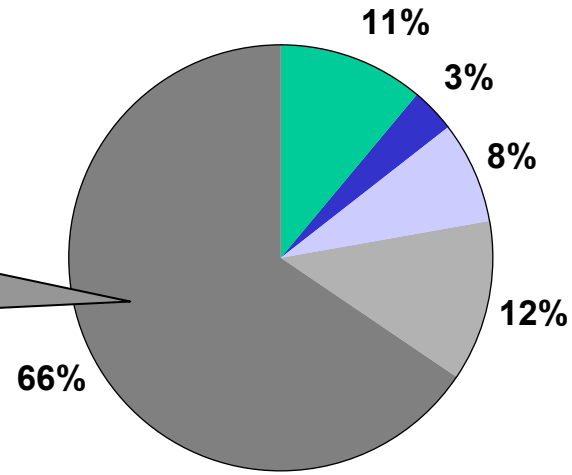
Extramural Efforts = $15M / Yr

BAA White Paper Distribution Statistics



- Academia
- Small Business
- Large Business
- Government
- Non-US

Detection (290 Papers)	
Acoustics	10
Nuclear	14
Optical	70
RF / Radar	29
Thz & mm Wave	30
Trace Detection	43
Other	36



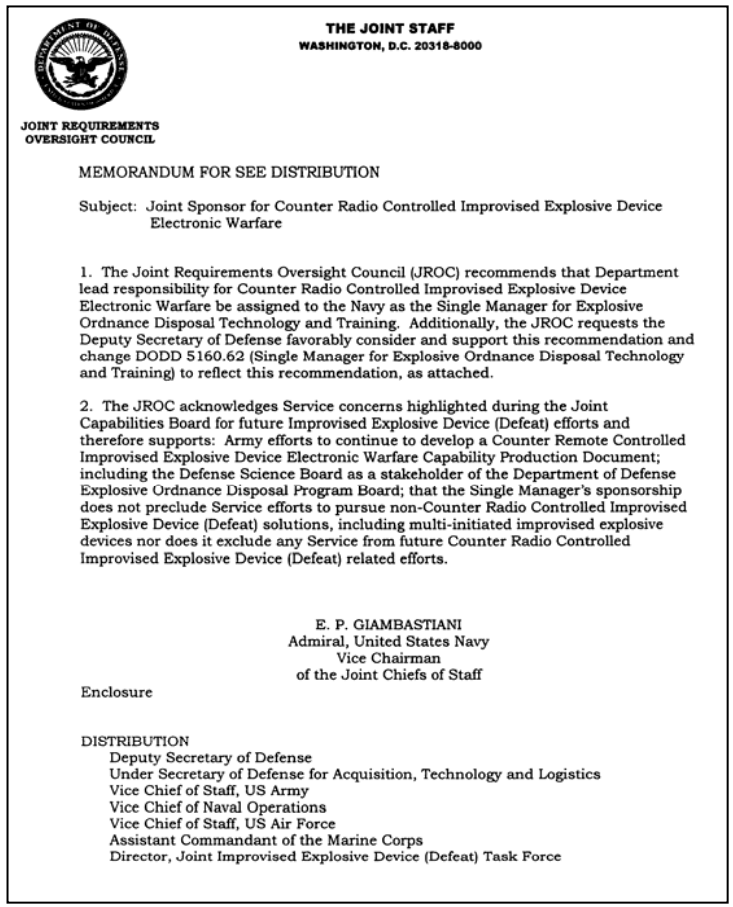
- Prediction
- Prevention
- Neutralize
- Mitigate
- Detection

DoD Single Manager Program for EOD Technology & Training

- **In 1971, DoD Directive 5160.62 designated SECNAV as Single Manager for DoD EOD Technology and Training to:**
  - Consolidate common EOD technology and training needs
  - Naval EOD Technology Division (NAVEODTECHDIV)
  - Naval School EOD (NAVSCOLEOD)
  - Preclude unnecessary duplication of effort
- **DoD EOD Program Board composed of Flag/General Officer Reps from All Services; Chaired by Navy Executive Manager**
  - Subordinate Joint Boards identify and validate joint EOD technology and training requirements
  - Joint Service Military Technical Acceptance Board (MTAB) determines best technology venue to meet requirement and accepts developed EOD tools, equipment and TTP for respective Services

Proposal to Expand SECNAV Single Manager responsibilities to include CREW

- **Joint IED Defeat Task Force CREW Strategy:**
  - Off ramp CREW responsibilities to Service Programs
  - Ensure common development
  - Ensure compatible, interoperable solutions
- **JCB recommended expanding scope of SECNAV Single Manager for JS EOD to encompass CREW:**
  - Joint processes and expertise in place
- **JROC recommended SECNAV as Single Manager**
- **DSD is approval authority**



THE JOINT STAFF
WASHINGTON, D.C. 20318-8000

JOINT REQUIREMENTS OVERSIGHT COUNCIL

MEMORANDUM FOR SEE DISTRIBUTION

Subject: Joint Sponsor for Counter Radio Controlled Improvised Explosive Device Electronic Warfare

1. The Joint Requirements Oversight Council (JROC) recommends that Department lead responsibility for Counter Radio Controlled Improvised Explosive Device Electronic Warfare be assigned to the Navy as the Single Manager for Explosive Ordnance Disposal Technology and Training. Additionally, the JROC requests the Deputy Secretary of Defense favorably consider and support this recommendation and change DODD 5160.62 (Single Manager for Explosive Ordnance Disposal Technology and Training) to reflect this recommendation, as attached.

2. The JROC acknowledges Service concerns highlighted during the Joint Capabilities Board for future Improvised Explosive Device (Defeat) efforts and therefore supports: Army efforts to continue to develop a Counter Remote Controlled Improvised Explosive Device Electronic Warfare Capability Production Document; including the Defense Science Board as a stakeholder of the Department of Defense Explosive Ordnance Disposal Program Board; that the Single Manager's sponsorship does not preclude Service efforts to pursue non-Counter Radio Controlled Improvised Explosive Device (Defeat) solutions, including multi-initiated improvised explosive devices nor does it exclude any Service from future Counter Radio Controlled Improvised Explosive Device (Defeat) related efforts.

E. P. GIAMBASTIANI
Admiral, United States Navy
Vice Chairman
of the Joint Chiefs of Staff

Enclosure

DISTRIBUTION
Deputy Secretary of Defense
Under Secretary of Defense for Acquisition, Technology and Logistics
Vice Chief of Staff, US Army
Vice Chief of Naval Operations
Vice Chief of Staff, US Air Force
Assistant Commandant of the Marine Corps
Director, Joint Improvised Explosive Device (Defeat) Task Force

BACKUP

DOD EOD Technology Program

- **Single Manager responsibilities include**
  - Joint Technology & Training
  - Science, Technology, & Development
  - DOD Acquisition
  - Life-cycle Support
- **The EOD Mission Requires Specialized Systems and Equipment for:**
  - Low Signature (Magnetic and Acoustic)
  - Operation in Harsh Environments
  - Small, Mobile Deployed EOD Forces
  - Operations against varied and sophisticated IED and UXO threats



Bottom line:
EOD Forces require a "tool bag", family of systems approach to defeat explosive hazards.
Single Manager must keep the tool bag relevant and supported.

NAVEODTECHDIV

- **NAVSEA Executes DOD Single Manager responsibilities for Joint Service EOD Technology and Training**

- **Naval EOD Technology Division develops Joint Service EOD capabilities:**
  - EOD knowledge management:
    - Sole developer of EOD procedures for US EOD Forces
      - 7500+ pubs covering over 46,000 ordnance items
      - Allied and coalition force distribution
    - Acquisition and exploitation of Threat Ordnance
      - World-wide exploitation capability
    - EOD Technical Support Center
      - 24/7 Reach back capability for EOD Operators
  - EOD technology:
    - JS EOD unique S&T and RDT&E
      - Develop tools & equipment
    - JS EOD Equipment in-service engineering
    - Logistics and life-cycle support





DOD EOD Program Organization





DOD EOD PROGRAM BOARD

SECNAV APPOINTED EXECUTIVE MANAGER (CHAIR)

ARMY MEMBER	MARINE CORPS MEMBER	NAVY MEMBER (CNO N75B)	AIR FORCE MEMBER
ACTION OFFICER	ACTION OFFICER	ACTION OFFICER	ACTION OFFICER

OASD SOLIC (EOD OSD PROPONENT)

ASN RDA

PEO-LMW

PMS-EOD

NAVSEA

SEA 00V

NAVEODTECHDIV

Deputy Manager for Technology (Indian Head, MD)

DETACHMENTS: A | MC | N | AF

MTAB: A | MC | N | AF

CNO N75X Executive Manager

N75XA Executive Assistant

N757 | N75X1 | N75X2 | N759/ N769

NETC

NAVSCOLEOD

Deputy Manager for Training (Eglin AFB, FL)

DETACHMENTS: A | MC | N | AF

TTAB: A | MC | N | AF

ULTRA Armored Patrol Vehicle



OBJECTIVE:

- Explore new and innovative ideas/technologies for next-generation mobility platforms, with a primary emphasis on crew survivability when exposed to blast, ballistic, and fragmentation threats.

MILITARY RELEVANCE/OPERATIONAL IMPACT:

- Increased crew survivability
- Improved mobility & safety

TECHNICAL APPROACH:

- Conduct vehicle requirements analysis
- Perform technology assessments
- Develop conceptual designs
- Perform armor performance simulations
- Generate advanced armor/crew cab concepts
- Integrate new armor/crew cab solution to COTS platform
- Deliver concept vehicle to Government

PERFORMERS: GTRI, Badenoch LLC, NSWC/CD, ONR

SCHEDULE:

TASKS	FY03	FY04	FY05	FY06
Ultra APV Program				
Cab Mockup Review				
Fabricate Concept Vehicle				
Fabricate 2nd Crew Cab				
Integrate Cab/armor/chassis				
Deliver to Government				

ONR POC: Mr. Jeff Bradel, 703-588-2552, bradelj@onr.navy.mil



Force Multipliers for the Joint Battlespace Session Expeditionary Maneuver Warfare Conference

Presented by

Mr. George Solhan

Deputy Chief of Naval Research

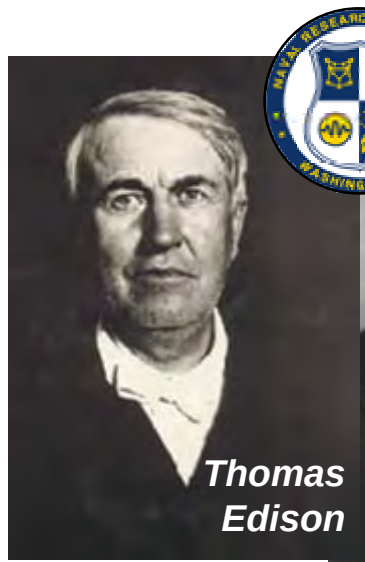
Expeditionary Maneuver Warfare & Combating Terrorism

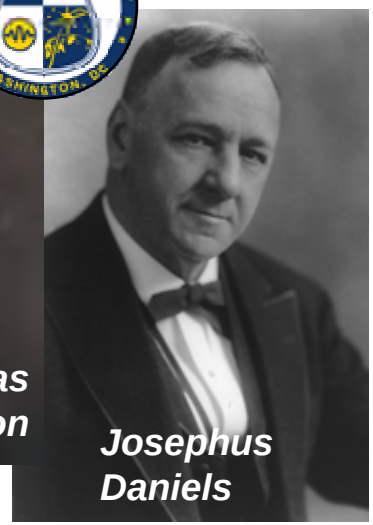
S&T Department

26 October 2005

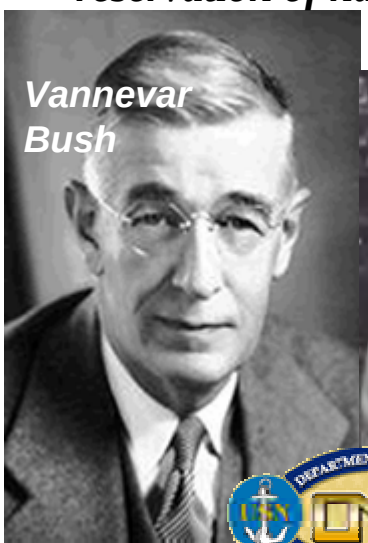
Naval Research: A Statutory Mission

Naval Research Laboratory ***(Appropriations Act, 1916)*****:**
"[Conduct] exploratory and research work…necessary… for the benefit of Government service, including the construction, equipment, and operation of a laboratory…."





Office of Naval Research ***(Public Law 588, 1946)*****:**
"… plan, foster, and encourage scientific research in recognition of its paramount importance as related to the maintenance of future naval power, and the reservation of national security…. "



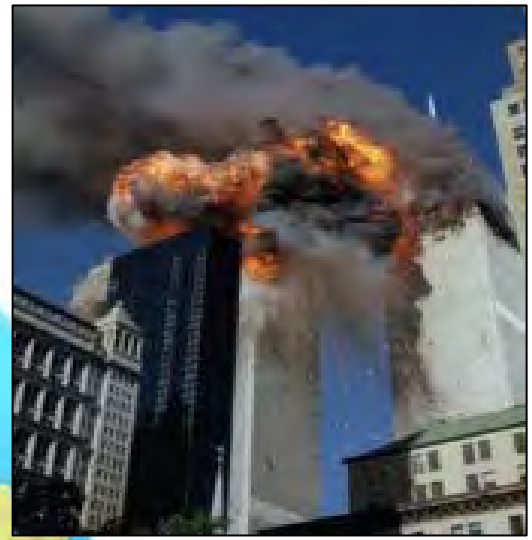


Transitioning S&T ***(Defense Authorization Act, 2001)*****:**
"…manage the Navy's basic, applied, and advanced research to foster transition from science and technology to higher levels of research, development, test, and evaluation."

ONR is an Echelon 1 Command

















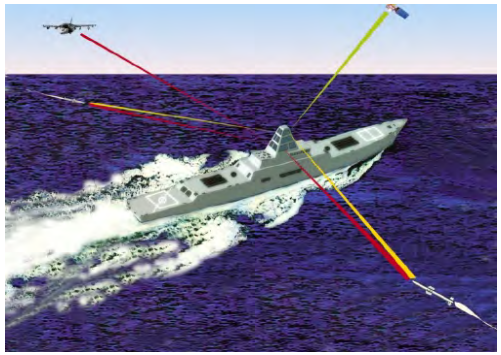
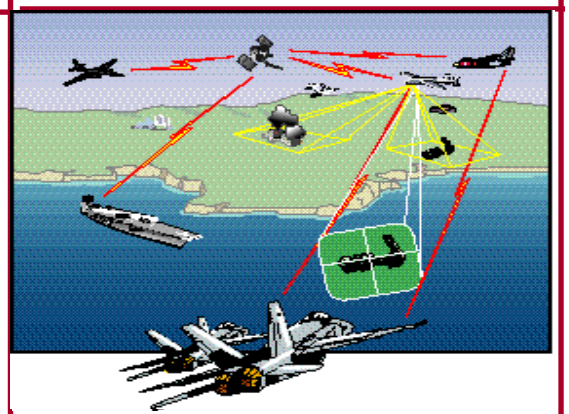
USMC Science and Technology

Experimentation

Requirements

Acquisition

ONR S&T Departments

Code 30	Code 31	Code 32
Expeditionary Manuever Warfare & Combating Terrorism	C4ISR	Ocean Battlespace Environment
		
Sea Warfare and Weapons	Warfighter Performance	Air Warfare and Weapons
		
Code 33	Code 34	Code 35

S & T Departments: Customers and Portfolios

EMW	FORCENet	SEA SHIELD	SEABASE	SEA WARRIOR	SEA STRIKE
MCCDC, MCWL, MARCORSYSCOM MARFOR, NAVFAC NCIS, DTRA, DHS SOCOM SPECWARCOM JNLW Directorate Army Research Lab	SPAWAR NETWARCOM ONI NRO NSA	N096 NAVMETOC CORE NOPP NOAA NASA UNOLS	NAVSEA NAVSURFOR NAVSUBFOR NAVAIRFOR (for ship systems) USCG DOE	Surgeon General Medical Officer of the USMC CNET CNP NIH	NAVAIR NAVAIRFOR Air Force Research Lab
DASN LMW	DASN IWS/LMW/ AIR/C4I	DASN SHIPS/ IWS/AIR	DASN SHIPS/LMW	DASN SHIPS/C41/ LMW	DASN SHIPS/ IWS/AIR
30 – Exp. Warfare & Combating Terrorism	31 – C4ISR	32 – Ocean Battlespace Environment	33 – Sea Warfare and Weapons	34 – Warfighter Performance	35 – Air Warfare and Weapons
Exp. Man. Warfare USMC STOs in multiple warfighting areas – C4; ISR; Logistics; Human Performance, Training & Survivability; Maneuver; MCM Warfare (w/32); Ground-based Firepower; Non-lethal Weapons; Naval Specwar;	Electronics Computer & Info Sciences Radar/EO/IR Maritime sensors EM propogation & interaction Signal & image processing C3 Networking Surveillance EW	Oceanography Coastal Geosciences Marine geology & geophysics Modeling & Sim Marine metrology Atmospheric effects Space MCM (w/30) UUV's (w/33)	Chemistry Power & energy conversion Naval materials Non-linear dynamics Ship Structures Ship HM&E ASW & UUV's (w/32) Ocean eng. & marine systems	Cognitive science Neural science Behavioral science Social org./science Manpower, personnel & training Human factors Medical science Bimolecular science Biosystems Biomaterials CBWD	Physics Aerospace materials Energetics Surface & Air launched weapons Kinetic & Directed energy weapons Robotics UAV's Air Vehicles

Combating Terrorism



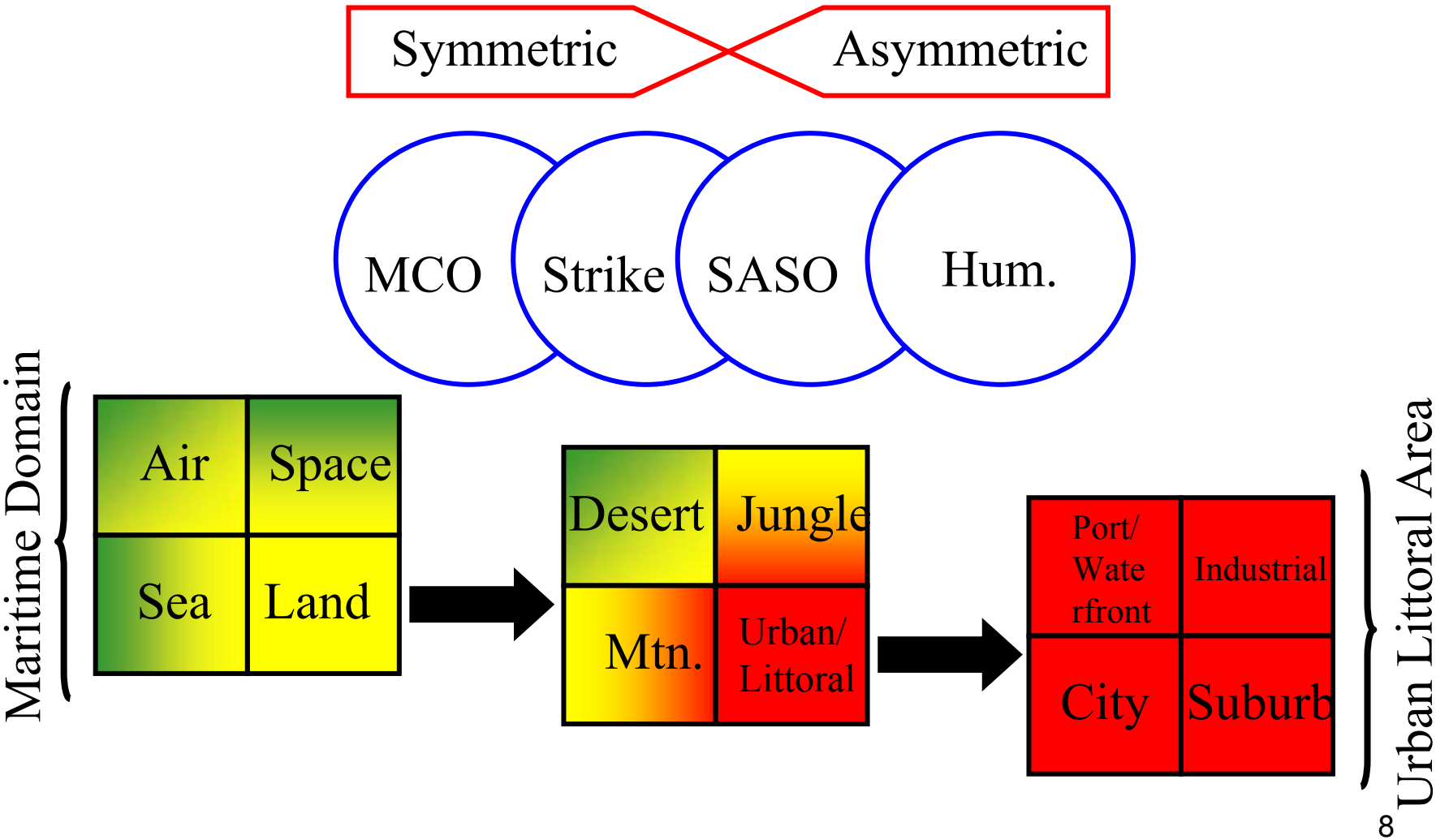
DON FY-06 S&T Portfolio

Discovery & Invention ($720M – 41%) • Naval Scientific disciplines • NRL/Warfare Centers • National Naval Responsibilities • Technical workforce sustainment • High impacts/surprises	Acquisition Enables ($551M – 32%) • FNC's (TOG Oversight) • Warfighter Protect • Capable Manpower (N1/N00T) • LO/CLO (PMR-51)
Directed/Pass-through ($295M – 17%) • JFCOM's Joint Experimentation • POM-04 PDM (except EM Rail Gun) • PBD's and earmarks	Leap-ahead Innovations ($182M – 10%) • Innovative Naval Prototypes • Swampworks • Tech Solutions • SEA TRIAL • Fleet/Force Response Programs

Most Contested

–

Least Invested



ONR 30 Mission

- ***To lead the Department of the Navy's Science and Technology efforts that develop future combat capabilities for Naval Expeditionary Maneuver Warfare and the Department's role in Combating Terrorism, through:***

  …the exploitation and subsequent application of Science and Technology in order to enhance the ability of the Navy-Marine Corps team to achieve assured access and conduct decisive operations as the naval portion of a joint campaign.

- **Investment Thrust Areas:**
  - **C4**
  - **ISR**
  - **Maneuver**
  - **Fires**
  - **Logistics**
  - **Human Performance/Training and Survivability**
  - **Mine Countermeasures (MCM)**
  - **Combating Terrorism**



USMC Basic Research Focus Program

- Basic Research component to:

  - Strengthen Naval benefit from Nation's research infrastructure (NSF, NRC, NRF, Universities, etc.)

  - Enable USMC to go beyond "technology harvesting" by encouraging its own scientific discovery and invention

  - Anticipate the future (USMC & USN After-Next) needs of Expeditionary/Combating Terrorism operations in specific focus areas:

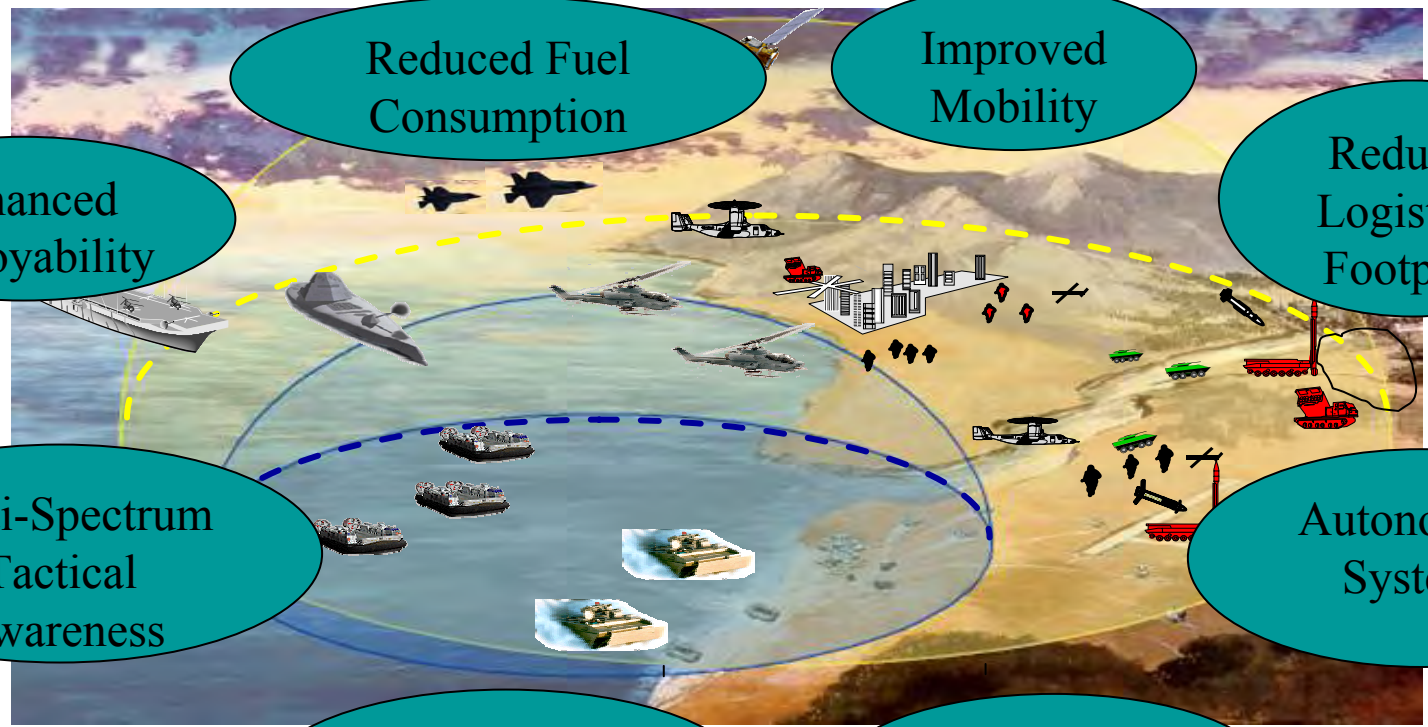
    −Communications
    −Information Efficiency
    −Lightweight Power Sources
    −Materials for Forensic Sensing
    −Human Sensory Enhancement
    −Landmine Detection
    −Energetic Materials



Examples of Texture Based Segment

Maneuver Warfare Desired Operational Capabilities

"Maneuver Warfare is the shift from quantitative characteristics of warfare - mass and volume - to qualitative factors of speed, stealth, precision, and sustainability"... ***Expeditionary Maneuver Warfare, 10 Nov 2001***



Reduced Fuel Consumption

Improved Mobility

Enhanced Deployability

Reduced Logistical Footprint

Multi-Spectrum Tactical Awareness

Autonomous Systems

Reduced Gross Weight

Improved Survivability

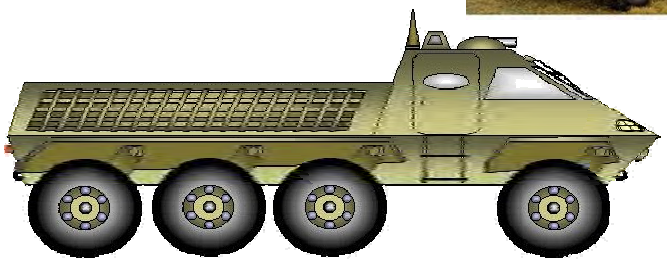
THRUST AREA

MANEUVER

Develop, demonstrate, and transition technologies that will increase the warfighting capabilities and effectiveness of the Marine Corps Air Ground Task Force (MAGTF). This Thrust aims at capturing emerging and "leap ahead" technologies in the areas of mobility, materials, propulsion, survivability, durability, signature reduction, modularity, and unmanned systems..







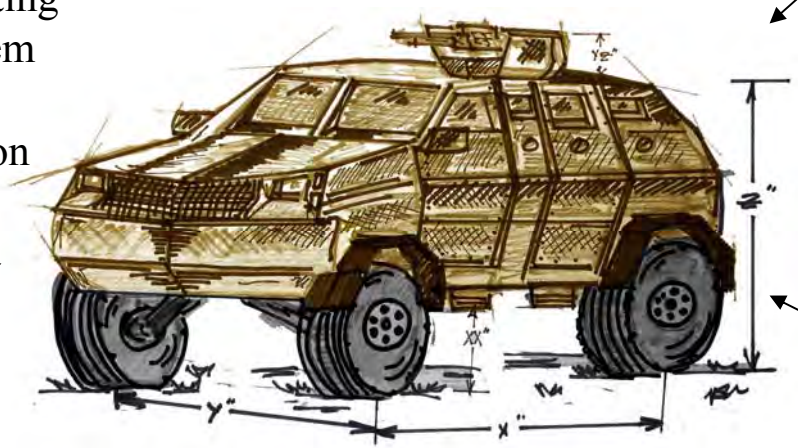
FOCUS AREA	PROJECT
SURVIVABILITY	SURVIVABILITY SYSTEMS MATERIALS (D&I)
	EXPLOSIVE RESISTANT COATING ACTD (D&I)
	ELECTROMAGNETIC NON-EXPLOSIVE ARMOR (D&I)
	COMBAT VEHICLE SURVIVABILITY STUDY (D&I)
	ADVANCED ELECTROMAGNETIC ARMOR (D&I)
	SHOCK MITIGATED SEAT (D&I)
	ULTRA ARMORED PATROL VEHICLE (D&I)
	ACTIVE RPG DEFENSE (FNC)
UNMANNED SYSTEMS	GUNSLINGER HOSTILE FIRE DETECTION (FNC)
ADVANCED MOBILITY	COGNITIVE ASSESSMENT & TASK MANAGEMENT (D&I)
	EXPEDITIONARY DECISION SUPPORT SYSTEM (FNC)
	MODELING & SIMULATION BASED DESIGN (D&I)
	BATTLEFIELD POWER GENERATION (FNC)
	ELECTRONICALLY CONTROLLED ACTIVE SUSPENSION (D&I)
	ADVANCED LEAD-ACID BATTERY (Plus-Up)
	FUTURE TACTICAL TRUCK SYSTEM ACTD (D&I)
	EXTREME TERRAIN MEDEVAC VEHICLE (Plus-Up)
	EFV OBSTACLE DETECTION SYSTEM (FNC)

Requirements of the next Combat Tactical Vehicle (CTV)

6 passenger
-3 Vehicles per Reinforced Squad for Distributed Operations

Survivability -
-V shape Underbody Armor
-Advanced Composite Armor Design
-Roll protection
-Shock Absorption Seating
-Fire Suppression System
-A and B Armor Kit
-Overpressure Mitigation

Transportability
-CH-53 External
-12,000 Curb Weight



Improved Automotive Performance
-Improved Suspension, Drive Train, Braking
-Stabilization Control

Energy Efficient
-Increase Range
-On Board Exportable Vehicle Power
-Hybrid Consideration

Space Claim to Allow for Follow on Technologies; Net Centric, Communications, Navigation, Position Locating Systems, etc…

THRUST AREA

LOGISTICS

Develop and mature technologies for application to the current and future Marine Corps expeditionary systems. Focus is on supporting the Tenets of Seabased Logistics with emerging technologies focusing of improved distribution, reduced combat load in the areas of fuel, water and energy and improved maintenance capabilities.







FOCUS AREA	PROJECT
LOGISTICS COMMAND & CONTROL	NIMBUS IN SUPPORT OF TOTAL ASSET VISIBILITY (E&D)
	AUTONOMIC LOGISTICS COMMON OPERATIONAL PICTURE FEASIBILITY STUDY (E&D)
	SURFACE ACOUSTIC WAVE ID FOR TOTAL ASSET VISIBILITY (E&D)
POWER	DEVELOPMENT OF NOVEL AIR ELECTRODES & HIGH POWER ZINC AIR BATTERIES (D&I)
	LIGHTWEIGHT HIGH SPECIFIC ENERGY BATTERY CHARGER (D&I)
	NEW MATERIALS & CONCEPTS FOR NEXT GEN METAL/AIR BATTERIES (D7I)
	SOLIDER SYSTEM POWER SOURCES (VIRTUAL TEST BED) (D&I)
	HYBRID ZINC AIR POWER SOURCES (D&I)
LOGISTICS MOBILITY	EXPEDITIONARY OFF CENTER IN-LINE OMNI DIRECTIONAL WHEEL
	HUMAN-AMPLIFICATION TECHNOLOGY LIFTER ARM
	COMPOSITE MILITARY BRIDGE STRUCTURES
	JOINT MODULAR INTERMODAL CONTAINER

Synthetic Fuel Requirements

Hydrogen

Near term
- Water
- Natural gas
- Coal
- Biomass

Longer term
- Gas hydrates
- Water splitting

Carbon

Near term
- Natural gas
- Coal
- Biomass

Long term
- Coal
- Shale
- Gas hydrates
- Recycled carbon (CO_2)

Mossgas, Mossel Bay, SA



Energy

Near term
- Natural gas
- Coal
- Nuclear

Long term
- Coal
- Shale
- Nuclear
- Gas hydrates

Logistic Fuels Production
Different Requirements - Different Options

Mossgas, Mossel Bay, SA



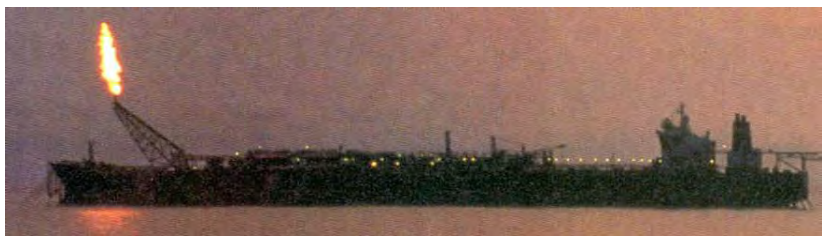
945,000 gal/day

Syntroleum

Land Based production facility
- **Current technology can be used**
- **Flexibility in output**
- **Few restrictions on plant size**
- **Wide flexibility for carbon source**
- **Can build large scale (100,000 bbl/day+)**



Transportable production system
- **Barge or platform installation**
- **Constraints demand technology change**
  - **Weight, height, etc may differ**
- **Intermediate scale of production**
- **Restrictions on carbon source**



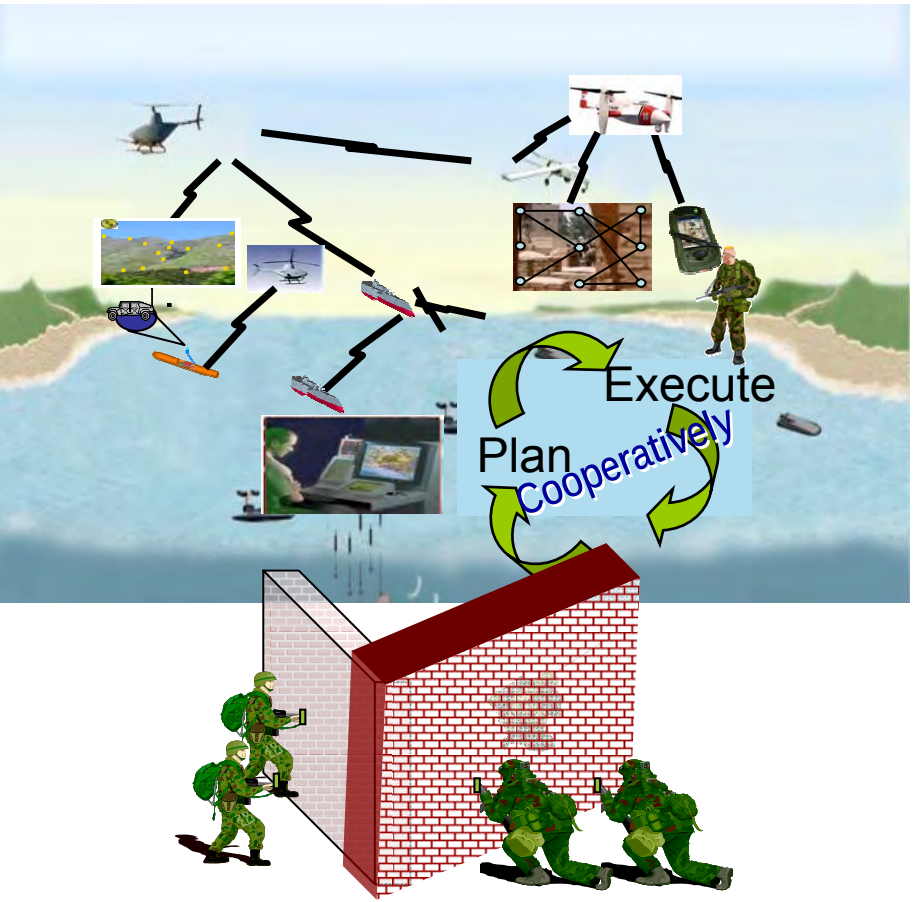
Mobile production system
- **Installed on vessel**
- **Highly constrained application**
  - **Size, weight, orientation, movement, etc**
- **Limited carbon sources**
  - **CO_2 from atmosphere or water**
  - **CO_2 from engine exhaust**

Increasing Complexity

THRUST AREA

INTELLIGENCE, SURVEILLANCE, & RECONNAISSANCE

Develop and leverage advanced technologies for applications in future intelligence, surveillance, and reconnaissance. Enhance situational awareness, and tactical decision making.



FOCUS AREA	PROJECT
SENSOR FIELDS	DESIGN TOOLS ENABLING MISSION SPECIFIC SENSOR FIELDS (FNC)
	SMART ALGORITHMS FOR TACTICAL SENSORS (FNC)
	AUTOMATED TACTICAL PLATFORM & SENSOR PLANNING $ MANAGEMENT (FNC)
	TACTICAL NET & DCGS INTEGRATION (FNC)
DETECT/ GEOLOCATE/ TRACK/IDENTIFY	TAG, TRACK AND LOCATE (D&I)
	REMOTE SENSOR FUSION CARD (FNC)
	PLANAR ARRAY ANTENNA (FNC)
	DETECT AND ID FACILITIES (FNC)
	RF EMITTER ID AND GEOLOCATION (FNC)
	SENSING THROUGH WALLS (FNC)
	TACTICAL LITTORAL SENSING (FNC)
CLASSIFY (KNOWLEDGE)	SIGNAL VISUALIZATION (FNC)
	HUMAN TO SENSOR FIELD INTERFACE (SMART DATA PULL) (FNC)
	AUTOMATED PATTERN RECOGNITION (FNC)
	TACTICAL DISTRIBUTED DATA ANALYSIS & AUTOMATED I&W (FNC)
	DISTRIBUTED TACTICAL DATABASE (FNC)
	DECISION AIDS (FNC)
	TRANSPARENT URBAN STRUCTURES (D&I)
	MODELING ADVERSARIAL DECISIONS IN COMPLEX OPERATIONAL WARFARE (D&I)

THRUST AREA

HUMAN PERFORMANCE, TRAINING,& SURVIABILITY

Empower today's warfighter by closing human performance gaps using training and survivability solutions, thereby creating tomorrow's superior warrior. HPT&S is defined broadly to include all aspects of human performance in the domains of Cognitive Performance, Physical Performance & Survivability, and Training Technology Enhancement.









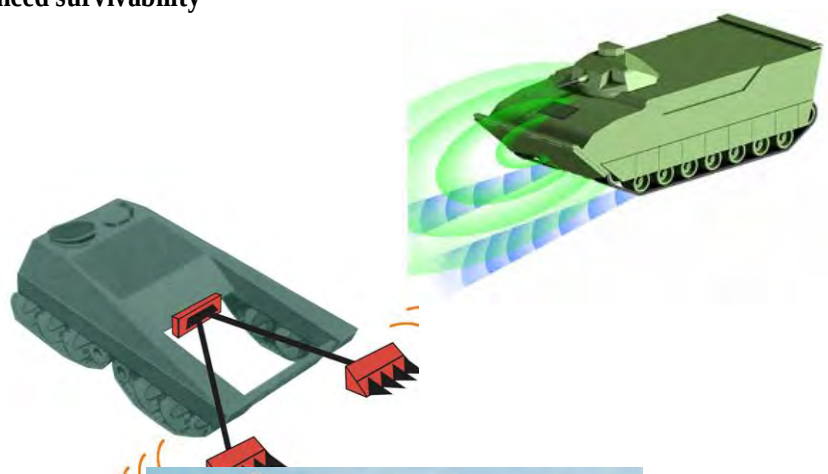


FOCUS AREA	PROJECT
COGNITIVE PERFORMANCE ENHANCEMENT	EEG MEASURES OF TEAM PERFORMANCE (D&I)
	COGNITIVE NEUROSCIENCE FOR ENHANCING TRAINING & PERFORMANCE (D&I)
	ELECTROPHYSIOLOGICAL DYNAMICS OF PROGRESS IN TRAINING (D&I)
	ELECTROPHYSIOLOGICAL MARKERS OF PROGRESSION THROUGH TRAINING (D&I)
	MEASURING NEURAL MECHANISMS OF EXPERT SELF-CONTROL (D&I)
	CORRELATES OF TEAM PERFORMANCE IN THE LABORATORY AND THE FIELD (D&I)
PHYSICAL PERFORMANCE ENHANCEMENT & SURVIVABILITY	COMBAT SITUATION AWARENESS (D&I)
	COMBAT NUTRITION (D&I)
	PHARMACOLOGICAL INTERVENTIONS (D&I)
	MARINE ADVANCE COMBAT HEADBORNE SYSTEM (E&D)
	COUNTER-FATIGUE INTERVENTIONS (D&I)
TRAINING TECHNOLOGY ENHANCEMENT	VIDEO INERTIAL NAVIGATION SYSTEM (E&D)
	HUMAN ASSISTED BUILDING GENERATION SYSTEM (E&D)
	FRONT PROJECTIVE DISPLAYS IN TRACKED VIRTUAL ENVIRONMENT (E&D)
	UN-INSTRUMENTED MOUT (E&D)
	AUTOMATED PERFORMANCE EVALUATION LESSONS LEARNED (E&D)
	COGPIT (E&D)
	COMMANDER'S DECISION RANGE REPLACEMENT (E&D)
EXPERIMENTATION	JOINT TERMINAL ATTACK CONTROLLER TDS
	DO/TDS COMMAND AND CONTROL
	DISTRIBUTED OPERATIONS VIRTUAL TESTBED

THRUST AREA

MINE COUNTER MEASURE

Develop technologies for critical MAGTF Mine Countermeasures needs to make sea and land MCM an integrated, seamless, and fully integral component of Expeditionary Maneuver Warfare. Focus areas include landmine detection, breaching/ neutralization of all mine types and enhanced survivability





FOCUS AREA	PROJECT
DETECTION / CLASSIFICATION	RF DETECTION OF IEDS (D&I)
	JOINT ENGINEER APPLICATION (FNC)
	ADVANCED MINE DECTECTOR (Plus-Up)
	GPR ALGORITHM DEVELOPMENT (D&I)
NEUTRALIZATION	NEUTRALIZATION TECHNOLOGY ROADMAPPING (D&I)
	SMART MINE SENSORS COUNTERMEASURE TECHNOLOGY (E&D)
	SELF EXTRACTOR / BREACHER (E&D)
	THREAT MINE EXPLOITATION (E&D)
	SCALEABLE SHAPE CHARGE MUNITIONS (E&D)
	LANDMINE COUNTERMEASURES & BREACHING MINE CLEARING LINE CHARGE (FNC)
	RADIO FREQ/DIRECTED ENERGY (RF/DE) FOR NEUTRALIZATION OF MINES/IEDS (D&I)
SURVIVABILITY	M&S TOOLS FOR MINE BLAST MODELING (D&I)
	MINE SURVIVABLE TESTBED VEHICLE (D&I)

THRUST AREA

FOCUS AREA

PROJECT

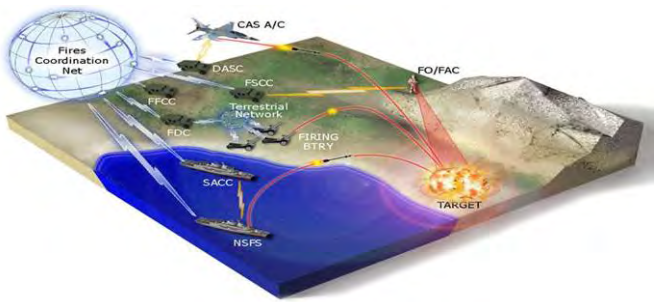
FIRES

Develop advanced technologies for application on current and future Marine Corps Expeditionary Firepower systems and elements of the kill chain. Current efforts focus on enhanced lethality and targeting as well as miniaturization and lightweight components.







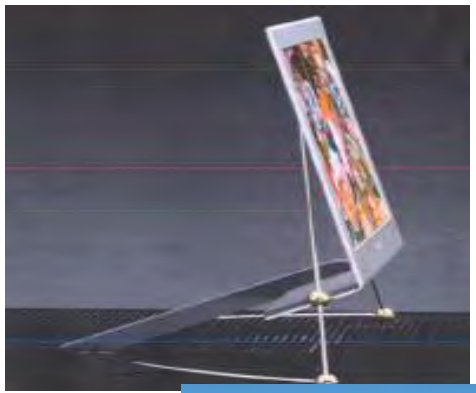


- **ADVANCED AMMUNITION TECHNOLOGY**
  - MODULAR SCALABLE EFFECTS WEAPONS (FNC)
    - EFSS PRECISION EXTENDED RANGE MUNITIONS (FNC)
  - VARIABLE BLAST WARHEAD (E&D)
    - MEMS FUZE (E&D)
  - STOICHOMETRIC OPTIMIZATION (D&I)
    - FIRE FROM ENCLOSED AREA (D&I)
  - MICRO DETONICS (D&I)
    - EXTENDED RANGE ELECTRIC PROJECTILE (E&D)
  - ADVANCED TARGET ACQUISITION (FNC)
    - CASELESS SMALL CALIBER AMMO (E&D)
  - ADVANCED AMMO PACKAGING (FNC)
- **ADVANCED WEAPONS TECHNOLOGY**
  - ADVANCED WEAPONS MATERIAL TECHNOLOGY (FNC)
- **TARGETING & ENGAGEMENT TECHNOLOGY**
  - IMPROVED FIRE CONTROL SYSTEM (FNC)
  - ADVANCED FIRES COORDINATION TECH (FNC)

THRUST AREA

COMMAND & CONTROL, COMPUTERS, COMMUNICATION

Develop and leverage advanced technologies for applications in future command & control, communications, and computers. Enhance situational awareness, tactical decision making, low probability of intercept/detection comm, and quality of service gains.





FOCUS AREA	PROJECT
NETWORK CENTRIC WARFARE / INTEROPERABILITY	NETWORK MONITORING & MANAGEMENT (FNC)
	COMMON OPERATING PICTURE FUSION (E&D)
	SECURE WIRELESS LAN AFLOAT (FNC)
	TACTICAL NETWORK INTEGRATION (E&D)
	NETWORK MOBILITY (D&I)
	MOBILE MODULAR COMMAND & CONTROL-R (M2C2) (Plus-Up)
OVER-THE-HORIZON COMMUNICATIONS	C2 ON THE MOVE NETWORK DIGITAL OVER THE HORIZON RELAY (FNC)
	M2C2 – P,A,O (Plus-Up)
	BLOS TACTICAL COMMUNICATIONS RELAY (FNC)
	CONFORMAL ANTENNAS (D&I)
	SATCOM ON THE MOVE (E&D)
	NON-LINE OF SIGHT COMMUNICATIONS (D&I)
URBAN / RESTRICTED ENVIRONMENTS	URBAN COMMUNICATIONS (E&D)
	POSITION LOCATION INFORMATION (FNC)
	COMMON SENSOR MODULE (Plus-Up)
	URBAN NAVIGATION (D&I)
	TACTICAL NETWORK SECURITY (D&I)
	RANDOM NOISE COMMUNICATIONS (D&I)
	ORGANIC LIGHT EMITTING DIODE (FNC)
	GPS DENIED NAVIGATION (FNC)
	GPS DENIED NAVIGATION TECHNOLOGY (D&I)
INFORMATION ON DEMAND	EXPEDITIONARY WARFARE TESTBED (Plus-Up)
	AGENT BASED NETWORK MANAGEMENT (D&I)

Naval Research Enterprise (NRE)
50 weight issues

- What S&T is and what is isn't
- Transition/application of technology for Combat capability
- Naval Futures and S&T Imperatives in the near, mid, and long range:
  - (peer competitors, non-state actors, Asia/Pacific, Economic environment, velocity of tech-change)
- Balanced investment in GWOT, Irregular/Asymmetric Warfare, Expeditionary Warfare
- Balance between major systems/platforms and individual warriors
- Why we do what we do…..

Questions?



Mr. George Solhan
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Expeditionary Maneuver Warfare & Combating Terrorism Department (ONR 30)
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solhang@onr.navy.mil

INTEGRATED DEEPWATER SYSTEM (IDS)

Expeditionary Warfare Conference

25 October 2005

RADM Patrick M. Stillman
Program Executive Officer



Homeland Security

DEEPWATER

Agenda

Securing the Maritime Domain

National Strategy for Maritime Security

Reduced Maritime Risk

The Multimission Coast Guard

Integrated Deepwater System

Meeting the Threat in the World's Littorals

National Fleet

Conclusion

The Threat



The 9/11 Commission concluded that "Opportunities to do harm are as great, or greater, in maritime or surface transportation," then in other transportation sectors

The West Coast dock workers strike demonstrates an economic impact of a forced closure of U.S. ports for a period of only eight days in excess of $58 billion to the U.S. economy.

Adm. Thomas H. Collins, Commandant Of The Coast Guard

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Rescue Operations

	29Aug L+2	30 Aug L+24	31 Aug L+48	1 Sep L+72 (L+3D)	2 Sep L+4D	3 Sep L+5D	Total as of 1200 11 Sep
RESCUED	3	1,256	1,600	1,141	5,000	6,655	24117
HOSPITAL EVACUATIONS						9,403	9,403
TOTAL	3	1,259	2,859	4,000	9,000	25,058	33,520





92 aircraft saved **12,533 people**
30 cutters and 111 small boats saved **11,584 people**

The Vulnerability of the Marine Transportation System



- Over 95,000 miles of coastline
- 26,000 miles of commercially navigable waterways
- 9 million containers enter our 361 seaports
- 3,200 marine terminals
- 8,000 foreign vessels
- 50,000 port calls annually at our seaports
- $800 billion dollars of domestic and international freight annually flow through our seaports

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Securing The Maritime Domain



- Understand the inherent risks, threats, vulnerabilities and consequences
- Have joint plans for prevention, response and recovery
- Strategic goals should facilitate commerce while protecting the nation's maritime borders

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National Strategy for Maritime Security

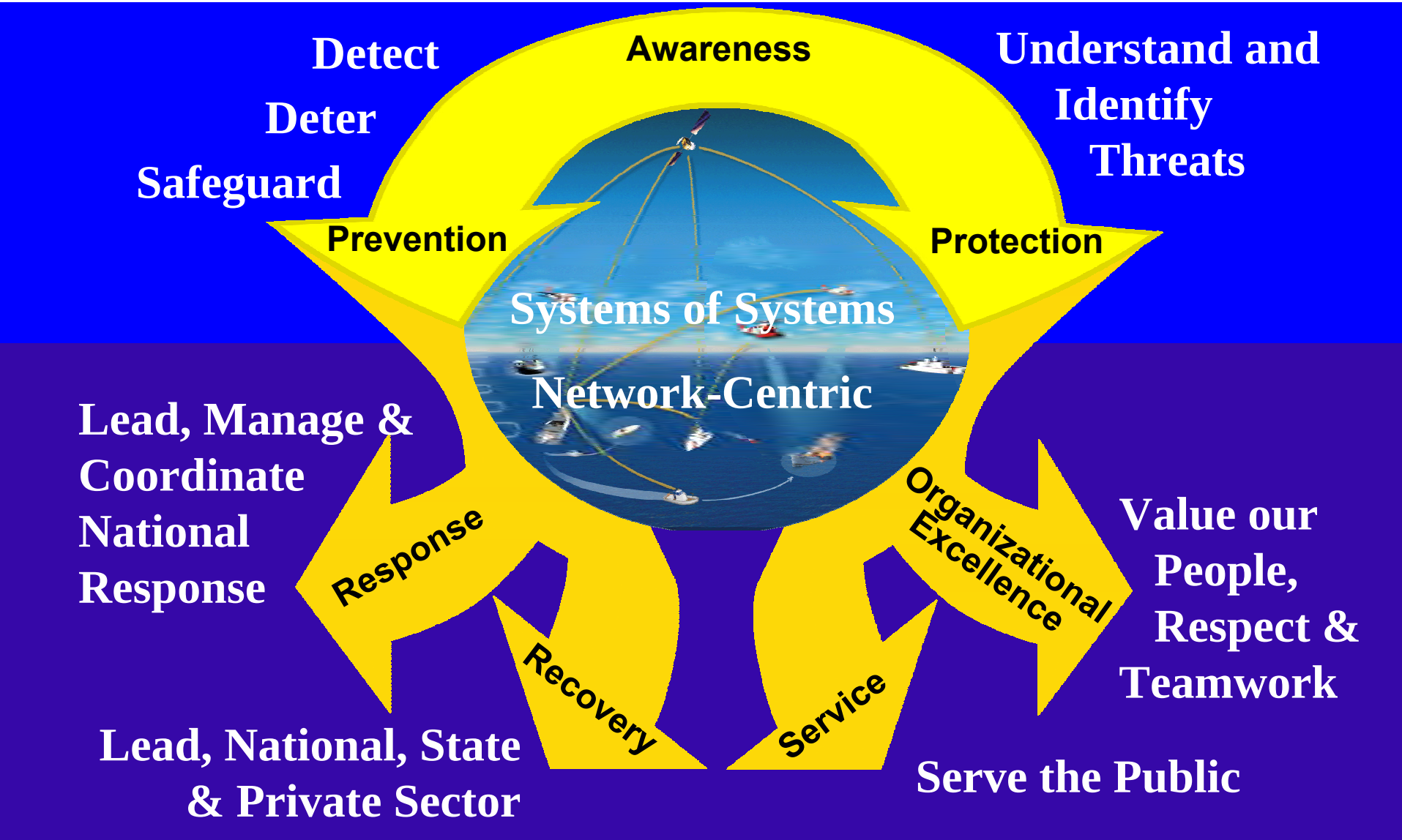
High-Level Objectives (DOD/DHS)

- Prevent terror attacks and criminal or hostile acts
- Protect population centers and critical infrastructure
- Minimize damage and expedite recovery
- Safeguard the ocean and its resources

Five Strategic Actions

- Enhance International Cooperation
- Maximize Domain Awareness
- Embed Security into Commercial Practices
- Deploying Layered Security
- Assure Continuity of the Marine Transportation System

DHS Strategic Plan



Reduced Maritime Risk

DHS Strategic Goals

Awareness → Prevention → Protection → Response/Recovery

Coast Guard Maritime Security Strategy

Enhance Maritime Domain Awareness

FY 2006 "MDA" initiatives

- **Deepwater**
- Automatic Identification System (AIS)
- Common Operational Picture (COP)
- Maritime Patrol Aircraft (MPA) Gap Reduction
- H-C130J Missionization
- Rad/Nuc

Comprehensive Maritime Security Regime

"Security Regime" initiatives

- **Deepwater**
- Maritime Transportation Security Act (MTS (Annualization)
- International Ship and Port Security Code (ISPS)

Increased Operational Presence

"Operational Presence" initiatives

- **Deepwater**
- Airborne Use of Force
- Cutter Boat – Over the Horizon
- Response Boat – Small/LNG Security
- Response Boat – Medium
- E-MSST

Enhanced Response Posture

"Response/Recovery" initiatives

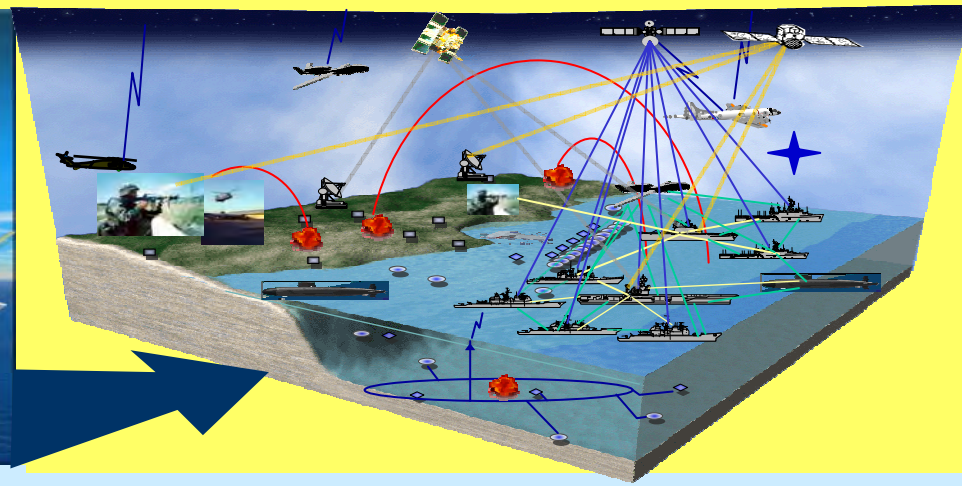
- **Deepwater**
- Rescue-21
- High Frequency Communication Recapitalization
- Airborne Use of Force
- Rad/Nuc
- E-MSST

(U.S. Coast Guard FY 2006 Initiatives)

USCG: "Straddling The Seam"

Homeland Security ⟷ Homeland Defense





Integrated Deepwater System

FORCEnet

- **The Coast Guard is the *one* organization that straddles the seam between the twin mission areas of homeland security and homeland defense**
- **It is at the confluence of Coast Guard authorities, law-enforcement competencies, interagency experience, and military functionality where threats can be identified and dealt with**
- **Improved Deepwater platforms and systems will serve as the Coast Guard's means for satisfying its responsibilities to *both* the Department of Homeland Security and the Department of Defense**

USCG Expeditionary Support to Combatant Commanders

- Littoral Ops
- MIO/Law Enforcement
- Port and Force Security
- Aids to Navigation
- Environment Response
- International Engagement

"Coast Guard patrol boats are highly maneuverable, fast, multimission vessels able to operate in shallow water and are therefore especially well-suited for operations in the Northern Arabian Gulf."

VADM David C. Nichols Jr., USN Commander , Commander, U.S. Fifth Fleet 2004

Homeland Security

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Coast Guard Cutters Forward-Deployed with Navy Fleets:

- Fifth Fleet in the Arabian Gulf/Middle East
- Sixth Fleet in the Mediterranean
- Seventh Fleet in the Western Pacific



Coast Guard cutters conduct maritime-intercept operations, carry out peacetime-engagement missions, and perform other essential expeditionary warfare tasks

Operation Iraqi Freedom



Coast Guard High Endurance Cutter BOUTWELL and Dallas were deployed to the Arabian Gulf/Middle East perform essential warfare tasks.



The Coast Guard has currently deployed four 110-foot cutters with support from Reserve Machine Technicians.





The Coast Guard has three Ports Security Units and two Mobile Support Units deployed in the M.E.

Coast Guard units were "employed around the clock ... the first line of defense" for coalition naval forces.

VADM Timothy J. Keating, USN
Commander, U.S. Fifth Fleet
2003

Integrated Deepwater System:

- Three classes of new cutters and associated small boats
- Manned and unmanned aircraft conversion, modernization, replacement



- Network-centric Command, Control, Communications, Computers, Intelligence, and Reconnaissance (C4ISR)
- Integrated logistics support
- Improved capabilities for high-threat operations

Deepwater, a layered maritime defense

Homeland Security

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System of Systems – Network-Centric



An *innovative, interoperable network-centric system* for command C4ISR improvements to harness the power of an interoperable network to improve performance in all mission areas, to *improve maritime domain awareness* and provide a *common operational picture*

Maritime Domain Awareness
The Deepwater C4ISR Contribution

Maritime Domain Awareness is the effective understanding of anything associated with the global maritime environment that could impact the security, safety, economy, or environment of the United States.

The Deepwater C4ISR system is a network-centric system designed to ensure seamless interoperability

- **Shared tracks and real-time data streams.**
- **On-line intelligence.**
- **Robust and seamless connectivity and continuous coordination.**
- **Stand-alone capability.**
- **Supplemented by active and passive sensors.**
- **Expanded area of surveillance and detection areas.**
- **Improved communications with all federal, state and local agencies and merchant shipping.**



Operational effectiveness enhanced by common maritime operational picture

Post-9/11 Implementation Plan

Addresses the Coast Guard's dual challenges of legacy-asset deterioration and performance gaps by:

1. Revised plan will enable the Deepwater Program to make more significant contributions to improved information sharing, collaboration, and interoperability in the maritime domain—essential capabilities to attain higher levels of maritime domain awareness (MDA)
2. Modifying the original assets that would have been delivered by the Deepwater project to incorporate improved post-9/11 capabilities
3. Retaining, upgrading, and converting aviation legacy assets (C-130s, H-60s, H-65s) as part of the final asset mix
4. Advancing the delivery of the Fast Response Cutter and Offshore Patrol Cutter.
5. Deliver more capable operating assets for the Coast Guard's post-9/11 transformation to support DHS strategic goals and to reduce maritime security risk

"A 21st Century Coast Guard"

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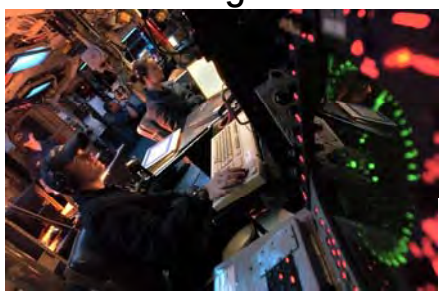
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Deepwater Meeting the Threat in the World's Littorals

Homeland Security

Security management at every point of engagement…

Intelligence-Information Collection & Sharing/MDA



Long – Range Surveillance/Air Transport



Vertical Insertion for Opposed Boarding



Anti-Terrorism/Force Protection



Surveillance Detection Identification Classification Prosecution



CG/DHS/DOD Common Operational Picture



DOD Interoperability, Deployment Capabilities



Enhanced CBRNE Detection and Defense Capability



Airborne Use of Force

Regional conflicts, transnational threats to U.S. commerce and national security, require improved U.S. sea-basing capabilities



- State-of-the-art C4ISR
- Upgraded capabilities for GWOT
- Hull 1 Keel Laid 29 March 2005
  - Hull #1 30% complete
- Hull 2 Start Fab October 2005
- Funds for 3rd hull in FY06 budget



NSC with Complement of Short Range Prosecutor (SRP), Long Range Interceptor (LRI), Vertical Takeoff Unmanned Aerial Vehicle (VUAV), MH-65C Multi-Mission Cutter Helicopter (MCH), and C4ISR.

National Security Cutter (NSC)
Contribution to the Homeland Shield

Homeland Security

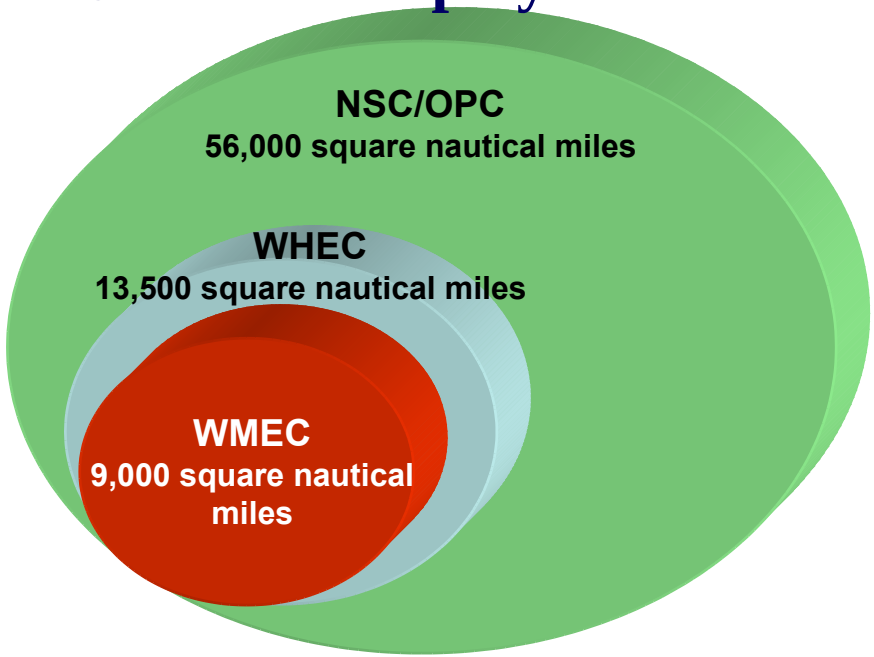
DEEPWATER

Total Daily Search Potential for Force Package of Cutter and Deployed Air Assets

Homeland Security

Today

Future



Total Daily Search Area



National Security Cutter (NSC)/Offshore Patrol Cutter (OPC)
Force package includes:
1 cutter on station for 24 hours
1short-range helicopter (MCH) with 4 flight hours
2 VUAV with 12 flight hours total



WHEC (378) Force package includes:
1 cutter on station for 24 hours
1 short-range helicopter (HH-65) with 4 flight hours



WMEC (270/210)
Force package includes:
1 cutter on station for 24 hours
1 short-range helicopter (HH-65) with 4 flight hours

National Fleet: A "Joint" Policy Direction

- **Navy/USCG supports collaboration, to achieve the highest level of naval and maritime operational integration for improved maritime security**
- **New U.S. National Strategy for Maritime Security calls for a *fully coordinated federal effort* to protect U.S. interests in the maritime domain**



"Current USCG acquisition efforts such as the Deepwater Program will greatly enhance the interoperability between USCG and USN units in the CENTCOM AOR."

GEN John Abizaid, USA Commander, U.S. Central Command 2005

Homeland Security

DEEPWATER

Navy-Coast Guard Cooperation
CNO Guidance for Fiscal Year 2006

- Develop closer working relationships with the U.S. Coast Guard and other agencies to improve:
  - National security
  - Homeland defense
  - Maritime domain awareness
  - Synergy and cost effectiveness
- Develop adaptive force packages and flexible deployment concepts for blue water and littoral environments
- Align with the National Fleet policy and National Strategy for Maritime Security

Navy and U.S. Coast Guard work cooperatively to improve homeland defense and national security through increased synergy and cost effectiveness.

Homeland Security

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Integrated Deepwater System
Building a 21st-Century Coast Guard

- Improved system-wide capacity and capabilities for post-9/11 missions
- Far more capable cutters, manned and unmanned aircraft, robust C4ISR
- Key enabler for USCG implementation of National Strategy for Maritime Security and National Fleet Policy
- Interoperable C4ISR: Better Maritime Domain Awareness, Common Operating Picture
- Closes "capability gaps" to reduce risk in the maritime domain
- Improved readiness, performance, and safety
- Important implications for mission support to Combatant Commanders
  - Expeditionary Warfare
  - Homeland Defense/Security
  - Improved USCG, Navy, and interagency interoperability
  - International engagement

Visit the IDS Web Page for latest Developments

TRANSFORMING AMERICA'S SHIELD OF FREEDOM

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Integrated Deepwater System

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SEARCH THE SITE:

Go

Tips for searching

DOMAINS

Surface
- National Security Cutter
- Offshore Patrol Cutter
- Fast Response Cutter
- Short Range Prosecutor
- Long Range Interceptor
- 123

Air
- Multi-mission Cutter Helo
- Maritime Patrol Aircraft /Medium Range Surveillance
- Long Range Surveillance
- Medium Range Recovery
- Vertical Takeoff and Landing Unmanned Aerial Vehicle
- High Altitude Endurance Unmanned Aerial Vehicle

CONSTRUCTION OF FIRST NATIONAL SECURITY CUTTER



The first National Security Cutter (NSC 1) fabrication unit to be lifted into place, since Hurricane Katrina swept through the Gulf Coast, at Northrop Grumman's Pascagoula, Miss. shipyard on Monday, Oct. 17.

Construction of the NSC 1 began in September 2004 and the ship is expected to be delivered to the Coast Guard in 2008.

Learn more about the NSC

IN THE NEWS...

$933.1 Million Earmarked for Coast Guard Modernization, Navy Times

Deepwater Contract Awarded for HC-130J Missionization

A Conversation with Rear Adm. Patrick M. Stillman, Insights, Third Quarter 2005

More News...

Deepwater Newsletter



Check us out: www.uscg.mil/deepwater